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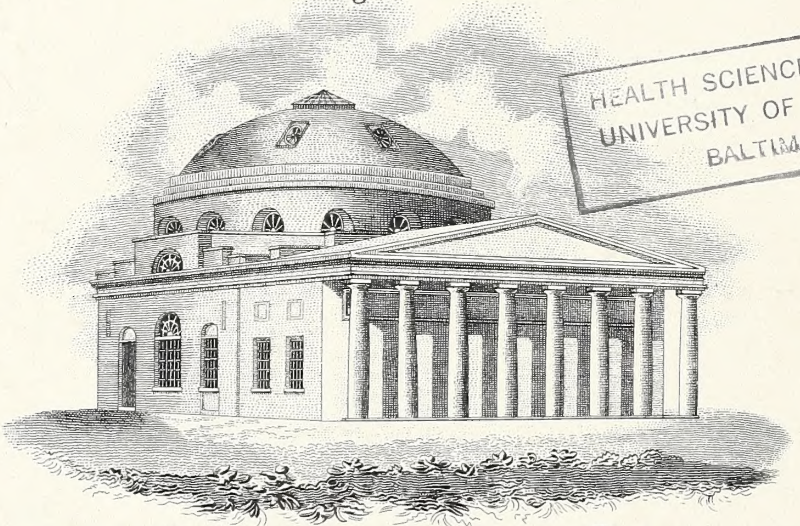

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Volume 35 **January, 1952** **Number 1**

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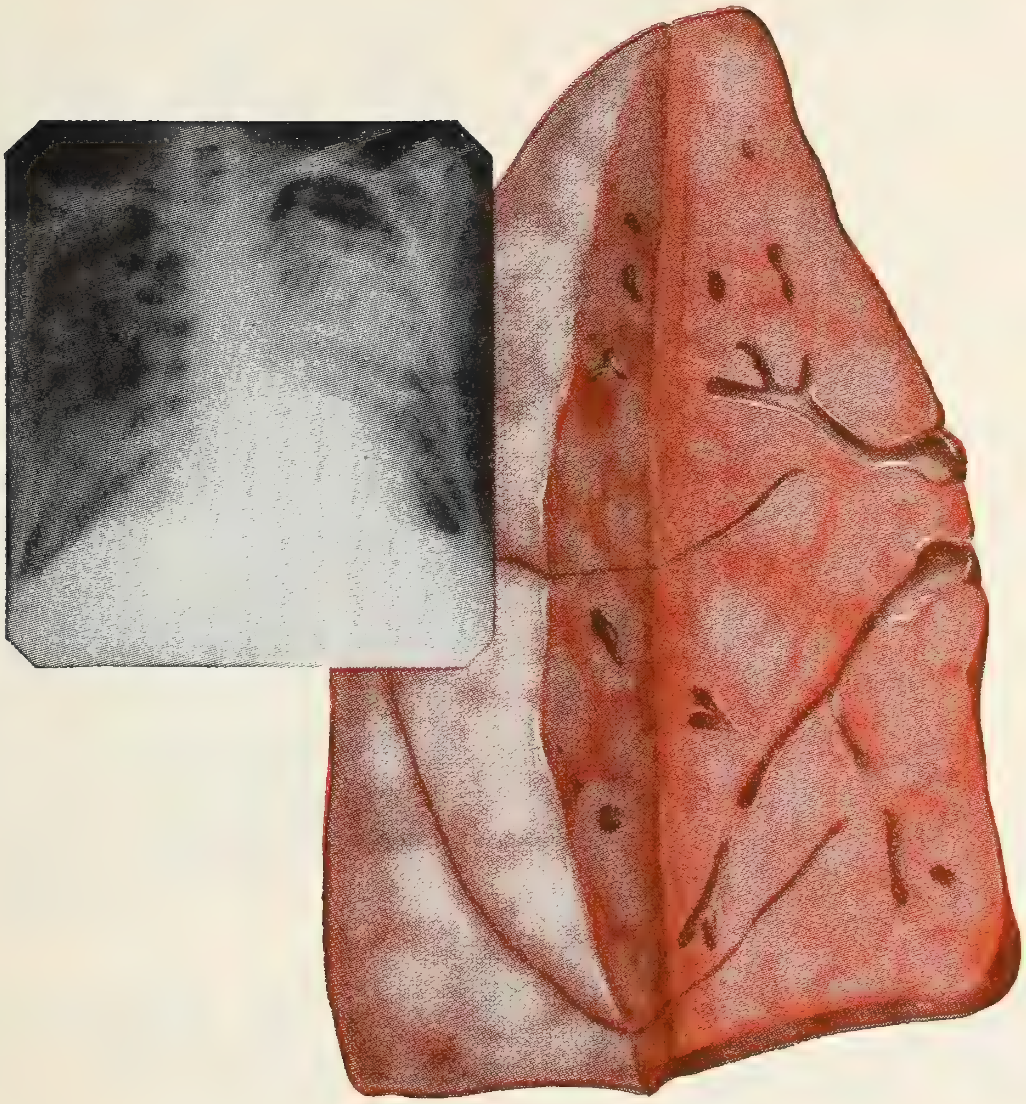

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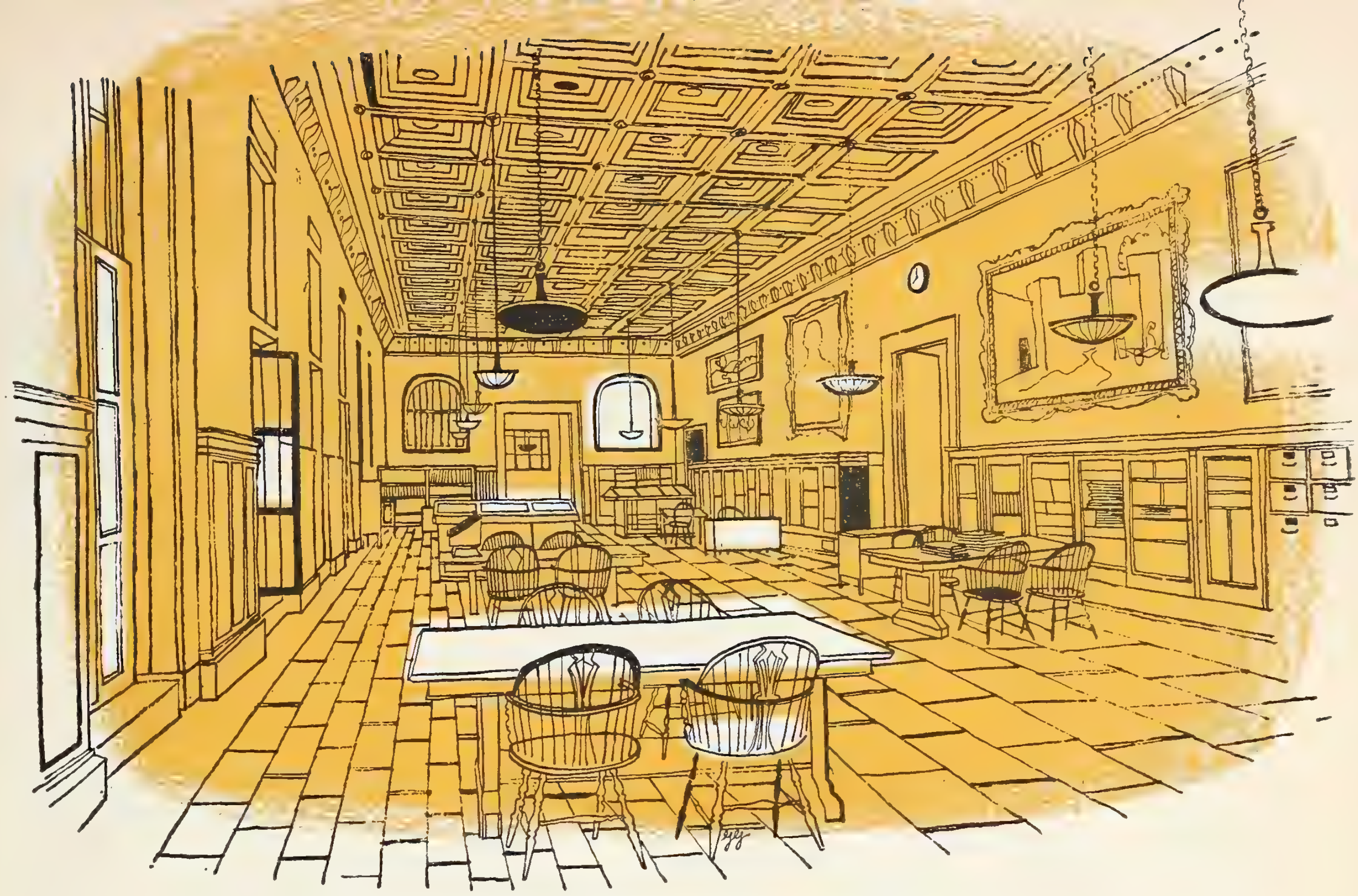

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1. Perloff, Wm. H. (1951), Treatment of the Menopause. II. American J. Obst. & Gynec., 61:670, March.

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The formerly held tenet that protein intake should be restricted for all patients with impaired renal function, in order to afford the kidney physiologic "rest," is no longer valid.[1] Except for infection and some neoplastic and traumatic disorders, the treatment of renal disease is nonspecific and essentially symptomatic. The clinical problem centers largely on diet regulation, in the hope of stimulating the kidneys to improve impaired function, without unduly risking harm.

Even in the presence of azotemia, a protein intake of 60 to 80 Gm. per day has not been found harmful to the renal patient. Low protein intake, on the other hand, together with urinary loss of protein may encourage the development of asthenia, anemia, hypoproteinemia, and edema.[2] Also pertinent to the dietary management in renal disease is the experimental finding that high protein diets in normal dogs promote higher urea clearance and greater renal blood flow than do low protein diets.[3,4]

Except in anuria, a protein intake adequate to maintain nitrogen balance has been suggested.[1] Although as little as 30 to 40 Gm. of protein per day may suffice for this purpose in the fever-free patient at bed rest, few occasions arise when 1 Gm. of protein per day per kilogram of body weight may not be given safely. In the presence of significant proteinuria, unless specifically contraindicated, the dietary protein may be increased beyond that amount in order to counterbalance the urinary protein loss.

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1. Mann, G. V., and Stare, F. J.: Nutritional Needs in Illness and Disease, Handbook of Nutrition, American Medical Association, ed. 2, Philadelphia, The Blakiston Company, 1951, chap. 17, p. 351.
2. Weiss, S.: Diet and Bright's Disease, Connecticut M. J. *5*:496, 1941.
3. Jolliffe, N., and Smith, H. W.: The Excretion of Urine in the Dog: II. The Urea and Creatinine Clearance on Cracker Meal Diet, Am. J. Physiol. 99:101, 1931.
4. Van Slyke, D. D.; Rhoads, C. P.; Hiller A., and Alving, A.: The Relationship of the Urea Clearance to the Renal Blood Flow, Am. J. Physiol. *110*:387, 1934.

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1. Perloff, W. M.: Am. J. Obst. & Gynec. 58:684, 1949.

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1. Moss, Henry N., and D'Alessandro, Domenic R.: The intensity and duration of the effect of Depo-Heparin on venous coagulation time in man. Am. Practitioner & Dig. of Treatment 2:309 (April) 1951

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Council on Pharmacy & Chemistry:
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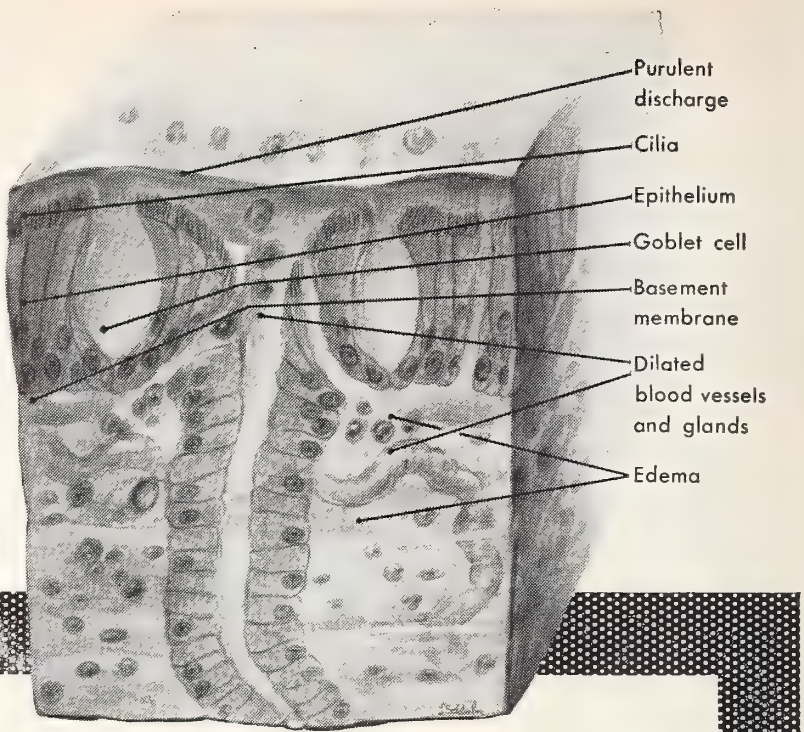
1950, p. 218.



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1. Rehfuss, M. E., Albrecht, F. K., and Price, A. H.: A Course in Practical Therapeutics. Baltimore, Williams & Wilkins Co., 1948, p. 111.
2. Kelley, S. F.: In Cornell Conferences on Therapy. New York, Macmillan Co., 1947, Vol. 2, p. 156.
3. Gold, H.: In Cornell Conferences on Therapy. New York, Macmillan Co., 1947, Vol. 2, p. 151.

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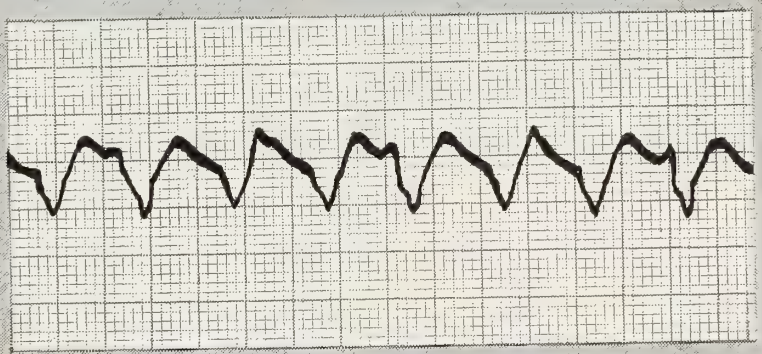
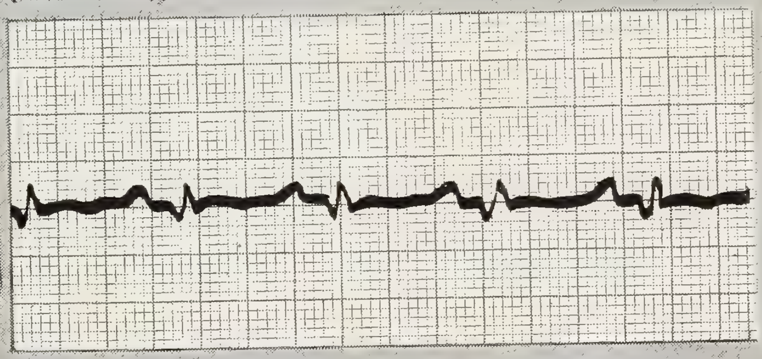


Lead II. Ventricular tachycardia persisting after six days of oral quinidine therapy (8 Gm. per day).



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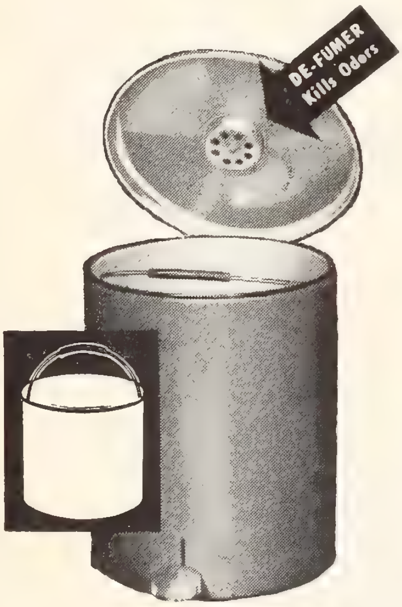

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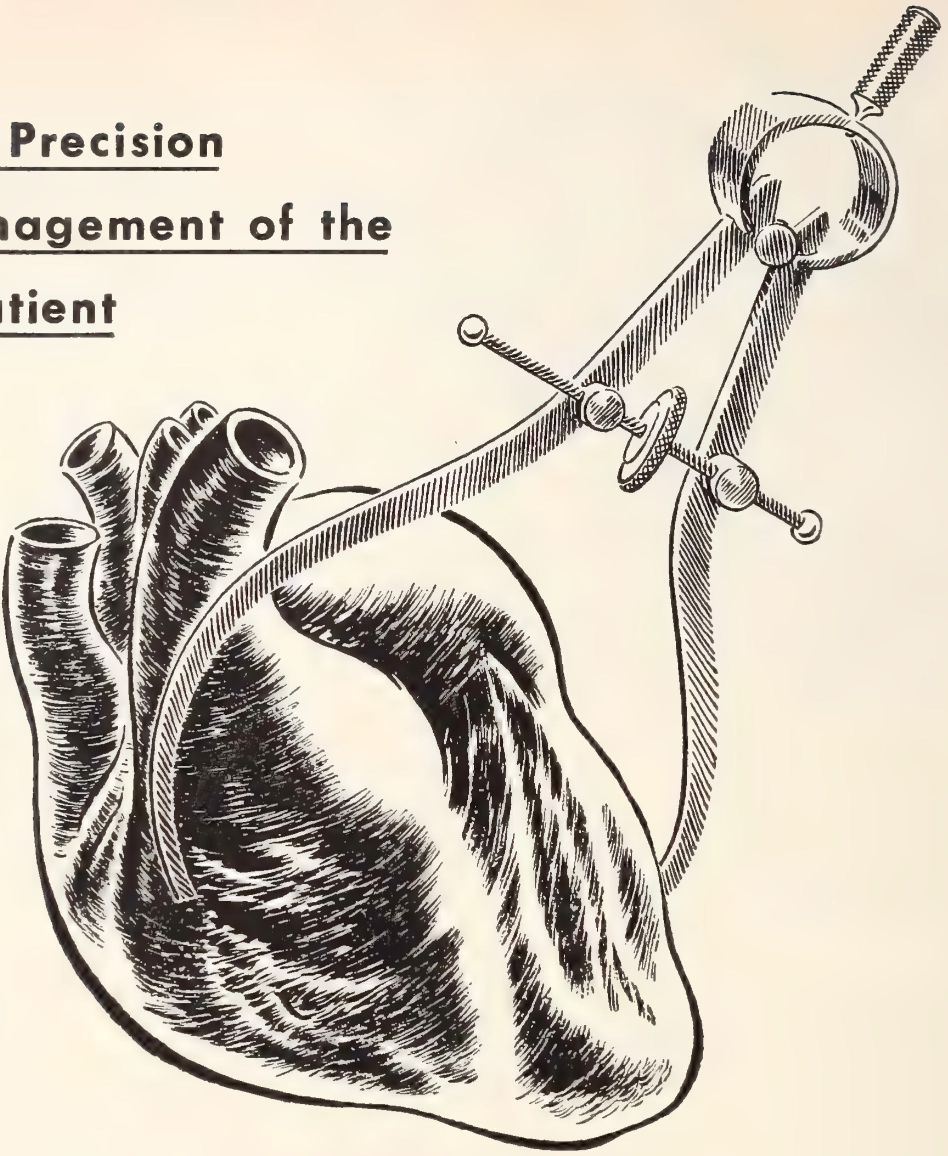

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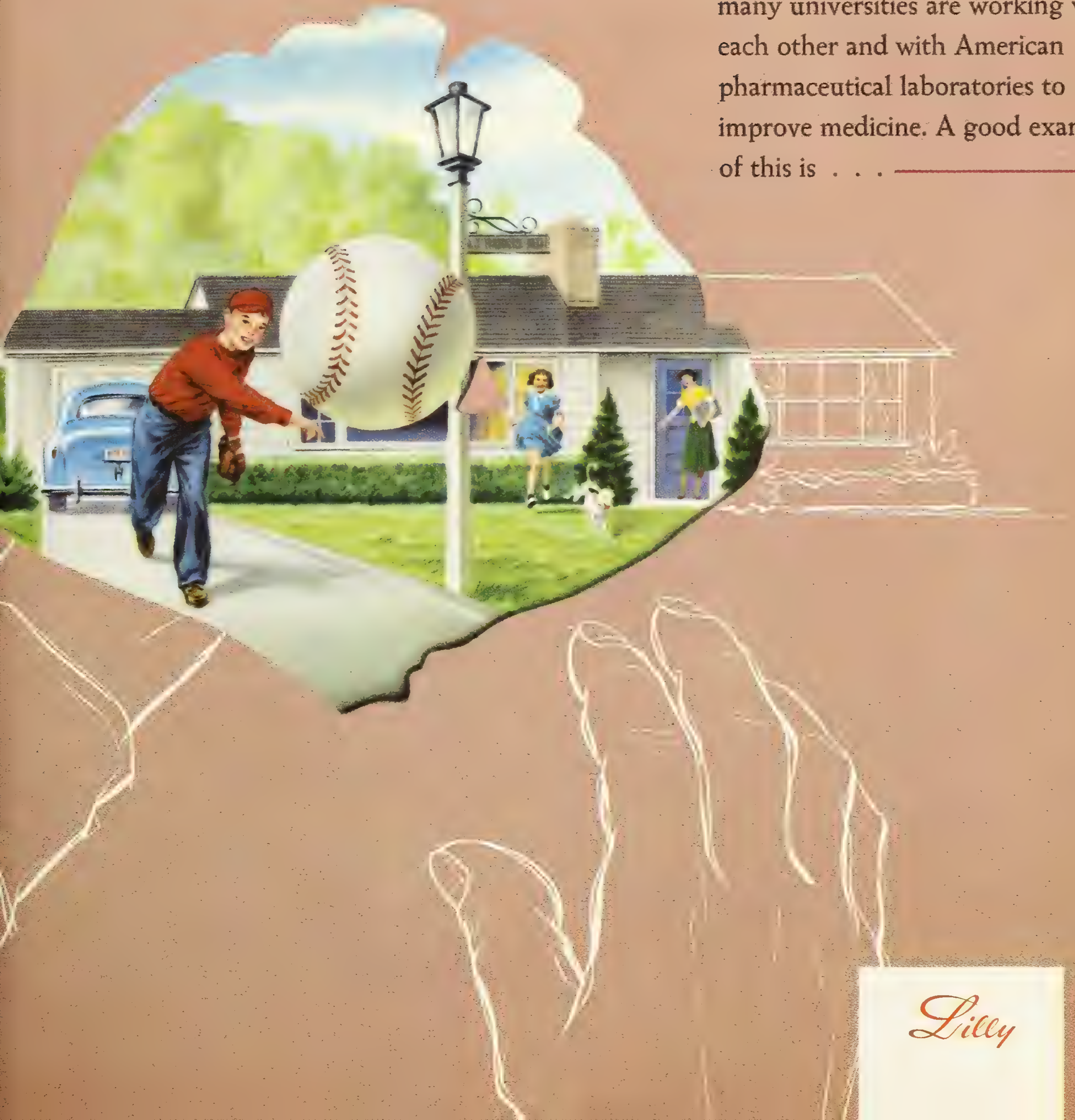

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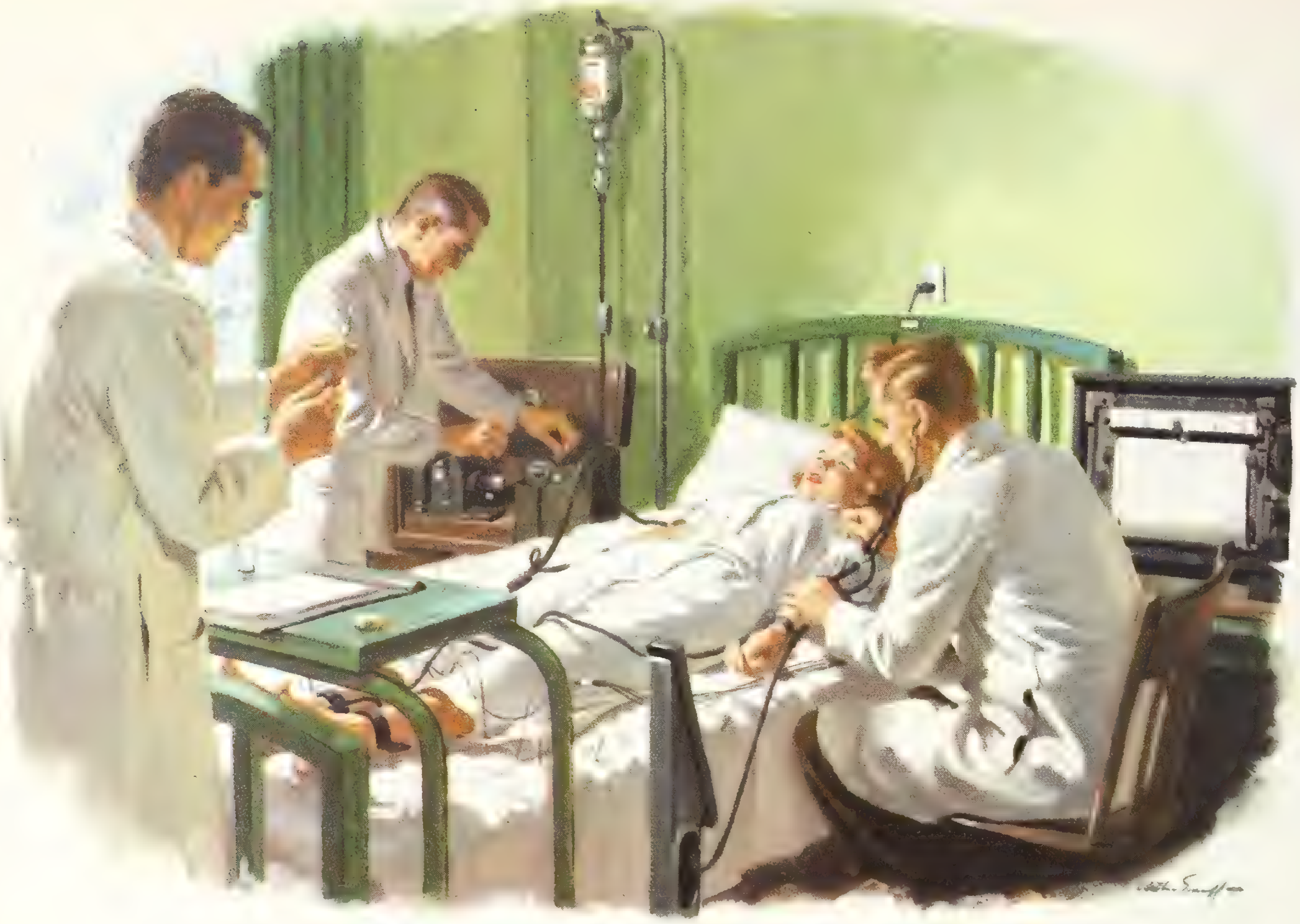

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Volume 35 **January, 1952** **Number 1**

A MATERNAL SYNDROME ASSOCIATED WITH ISOIMMUNIZATION AND FETAL DEATH IN UTERO

IRWIN H. KAISER, M.D.

Minneapolis, Minnesota

THE fate of the fetus, rather than that of the mother, has up to now commanded attention in pregnancy complicated by isoimmunization. Except for the occasional sensitized mother brought to clinical notice by mismatched blood transfusion or afibrinogenemia,[5] it has been generally assumed that isoimmunization produces no recognizable symptoms and that laboratory determination of circulating antibodies is required for its recognition. Recent editions of two standard obstetrical textbooks either state that no clinical disease in the mother has been correlated with isoimmunization[2] or indicate that perhaps the incidence of toxemia is slightly increased.[3]

The three cases reported below represent instances of a striking maternal syndrome associated with grave degrees of isoimmunization. It is noteworthy that each patient presented herself to the physician with specific complaints. Both patients who had had previous fetal death in utero stated simply that they were experiencing a repetition of complaints associated with that event. The common clinical features in these three patients are a history of previous infant mortality due to erythroblastosis fetalis, the presence of high anti-Rh antibody titers, the sudden appearance prior to term of mild generalized and moderate dependent edema with sharp weight gain and the destruction of the fetus in utero shortly thereafter.

Case 1.—Mrs. H. L., a twenty-six-year-old woman, para 3-0-0-1, registered for the first time at Sinai Hospital, Baltimore, Maryland, on June 24, 1949, with an expected date of confinement of November 12, 1949.

In 1945 she had delivered elsewhere a baby which was in excellent condition at birth and which is alive and well today. In 1946 the patient was delivered at the same hospital of a living male infant. An abstract from that hospital stated that the baby was born without difficulty but almost immediately after birth began showing signs of abnormality. It had a weak cry and was noted to be markedly jaundiced. A diagnosis of erythroblastosis fetalis was made, and despite transfusion with Rh-negative blood, the baby expired. In the third pregnancy, which terminated in 1948, fetal movements ceased one week prior to delivery, which occurred three weeks prior to term. The infant weighed 8 pounds 2 ounces, but the only information that could be obtained from the hospital was that "the baby died before birth because of Rh-negative factor."

The patient gave no history of transfusion.

Examination of the patient's blood disclosed that she was blood group A_1 MN, Rh negative (cde). Antibody titers had been studied in the previous pregnancy and were elevated throughout that pregnancy. At the time of initial examination during the present pregnancy, elevated anti-Rh titers were again found. The patient's husband was found to be blood Group O Rh_0 (cDe). The husband's father was found to be an A_1, MN, Rh_2 (cDE), and the husband's sister, A_1, MN Rh_2 (cDE). The husband's mother was dead. It was, therefore, not possible to prove that the husband was homozygous.

Treatment with Rh haptene (Lilly) was initiated on August 2. Haptene was given once a week throughout August. There was no change in antititers. In the first week in September it was reported that the antititers had suddenly markedly increased. A few days after this observation the patient reported to the obstetrical clinic. She stated that fetal movements had suddenly become less and that the same pattern which had preceded her last fetal death in utero was appearing. The patient herself had noticed that two days previously she had begun to have edema in the lower extremities. She had increased 5 pounds in weight, from 100 to 105 pounds in

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From the Department of Obstetrics and Gynecology, the University of Minnesota Medical School, and the Department of Obstetrics, Sinai Hospital of Baltimore, Baltimore, Maryland.

five days. There was no albumin of the urine. Blood pressure was 95/60. Despite the fact that the patient was two months from term, the fetus was estimated to weigh 2,600 grams. The fetal heartbeat was heard. X-ray of the abdomen was taken and was interpreted as showing slight edema of the fetal scalp. Epiphyseal centers were not found in the fetus. The patient was seen again a few days later, stating that she had felt no fetal movements for four days, and the fetal heart could not be heard at this time. However, the marked edema of the patient's feet and ankles was still present and the patient's face appeared pasty. She stated that she thought it was swollen. Her weight had increased another 2 pounds. About two weeks later the patient rather suddenly began to feel much better. Edema disappeared and she had a weight loss of 6 pounds, down now to almost the same weight she had been prior to the beginning of the episode. However, her appetite was poor.

She was followed for another week and a half, and finally on October 11, approximately four weeks following fetal death, the patient went into active labor. She delivered a macerated stillborn male infant weighing 1,700 grams without event. The post-partum course was entirely unremarkable.

Case 2.—Mrs. H. M., a thirty-year-old woman, para 2-1-0-1, registered for the first time at University Hospitals on October 31, 1950, with an expected date of confinement of April 26, 1951.

In 1942 she had a term delivery by low forceps of a 7-pound baby in excellent condition. Her second delivery in 1946 terminated spontaneously at thirty-eight weeks in the birth of a stillborn infant which weighed approximately 6½ pounds. She had noticed decreased fetal movements in the last weeks of pregnancy. About two weeks prior to the termination of this second pregnancy, the patient developed a deep burning itch of the hands and feet which vanished at the time of delivery. In 1949, at seven and one-half months of pregnancy, she spontaneously delivered a stillborn infant weighing approximately 5 pounds, which had had decreased fetal movements a few hours before labor began. With this third pregnancy, she had noticed itching of her hands, feet and other parts of the body which began three weeks prior to fetal death in utero.

The patient gave no history of operation or blood transfusion.

Laboratory studies revealed that the patient was Rh-negative (cde). Her husband was found to be Rh_2 (cDE) and hr″ (e) negative. Her living child was found to be Rh_2 (cDE) hr″ (e) positive. Her blood, titered against Rh_0 (D) cells, revealed no anti-Rh_0 (anti-D) antibodies. However, when it was titered against Rh″ (E) cells, high titers were found.

She was begun on Rh haptene (Lilly) in early November. Titers taken on blood in the last week of December showed marked increase in all the titers. The pregnancy proceeded uneventfully until January 6, when the patient noted the onset of itching of the palms and soles. She was seen very shortly after this. Physical examination was entirely unremarkable. The pregnancy seemed to be proceeding uneventfully. There was no albumin in the urine. The fetal heart beat was excellent in the left lower quadrant, and the patient had noticed no change in fetal movements. She was at this time approximately twenty-five weeks' pregnant. Haptene therapy was continued. On January 16 it was noted that the uterus seemed to be enlarging very rapidly. The patient was steadily gaining weight during this period. Fetal heart tones were good and fetal movements excellent. The itching continued without change. On January 20 there was a sudden exacerbation of the itching. She had gained 15 pounds in weight from 138 to 153 in the three weeks since the end of December. Fetal movements were felt the previous night, but none felt that day. It was difficult to be certain of the presence of fetal heart tones. The patient was given a prescription for phenobarbital and pyribenzamine on empiric grounds and two days later reported that the itching was much relieved. However, she had had no fetal movements in the last two days. In the last week in January the patient suddenly noted considerable swelling of the feet and ankles which lasted for about two days and was accompanied by a further gain in weight of several pounds. Study of the serum bile acids at the height of the itching on January 23 revealed a level of 1.3 mg. per cent against a control value of 0.8 mg. per cent.

The patient had three episodes of false labor. She was finally brought into the hospital on February 7, at which time she was essentially asymptomatic except for some brownish discharge. She had just lost 10 pounds. Induction was carried out successfully with the delivery of a 950 gm. stillborn infant. The placenta, which was obviously severely involved in hydrops fetalis, weighed 935 gm. and its delivery was accompanied by a 750 cc. third-stage hemorrhage. The patient was given a 500 cc. blood transfusion. Serum bilirubin done on the third day was 1.0 mg. per cent in one minute, 1.6 mg. per cent total. The patient's puerperium was entirely uneventful. She was discharged from the hospital asymptomatic and in good emotional state.

Case 3.—Mrs. L. S., a twenty-four-year-old woman, para 3-0-0-2, registered for the first time at University Hospitals on May 31, 1951, with an expected date of confinement of October 8, 1951.

In 1944 she gave birth spontaneously at full-term to an infant weighing 7 pounds 15 ounces without event. In 1945 she gave birth after an eight-hour labor to an infant weighing slightly over 9 pounds. These infants are living and well. She is said to have had a considerable amount of hemorrhage after each delivery, but it is not known definitely whether she had blood transfusion. In 1950 a term pregnancy which was complicated by elevated blood pressure and considerable edema terminated in the delivery of twins. One infant was noted to be jaundiced at birth and became worse very rapidly. Despite transfusion it died within forty-eight hours of delivery. The other infant was not noted to be jaundiced at birth, but it had a rapid drop in hemoglobin with an abnormal number of erythroblasts present in the blood, and despite an exchange transfusion done on the third day of life, the baby died on that day. Autopsy was performed on both infants and reported to be compatible with erythroblastosis.

The fact that the patient was Rh-negative was not ascertained until after this delivery.

Her living children were both found to be Rh_1 (CDe). Her husband was also an Rh_1 (CDe) homozygous for Rh′ (C).

The patient was found to have markedly elevated Rh antibodies on admission. She was followed in the out-patient department for the next several months. The fetal heart tones were first heard at the end of June. The patient received no therapy. She gained weight slowly to reach 250 pounds at the beginning of August. When she was seen in the out-patient department on August 23, approximately thirty-two weeks' pregnant, she was noted to have had a 5-pound weight gain. Blood pressure was still entirely normal and there was no albumin in the urine. Two weeks later, on September 6, 1951, the patient was found to have gained 15 pounds in the preceding two weeks. Fetal heart tones were present. There was a trace of albumin in the urine and blood pressure was within normal limits. Antibody titers had not changed materially. Hospitalization was advised, but the patient refused.

The patient appeared at the hospital at 5:00 a.m. on September 9 because of a sudden exacerbation during the night of severe generalized itching, which had appeared on September 6 but continued to get much worse. She had also had aching in the pelvis, nausea, a little bit of vomiting and generalized malaise. Examination of the urine disclosed 1+ albumin. Because of the patient's marked obesity, it was difficult to make out fetal size but the impression was that the baby was large. Fetal heart tones were present. Blood pressure on admission was 150/100. The situation was reviewed, and it was felt that fetal death in utero was imminent. It did not seem advisable to induce labor since the presenting part was floating and the cervix long and closed. It was, therefore, decided to terminate the pregnancy by cesarean section in an attempt to get a living baby. This procedure was carried out, with the delivery of a massively edematous, stillborn, 3,000 gm. infant with bilateral hydrothorax, ascites, generalized edema and a hemoglobin on the heart's blood of 3.6 gm. per cent. The serum proteins were found to be 1.8 gm. per cent. Autopsy on the infant was refused. The placenta was massive and showed the characteristic changes of hydrops fetalis.

In the twenty-four hours following delivery, the patient had a spectacular elevation of blood pressure which reached at its maximum a level of 220/150. This responded well to sedation and the patient at time of discharge had stabilized her blood pressure at 140/90. Examination of the eye grounds showed generalized arterial spasm with old choroiditis in the left eye in a patch of considerable size. The vascular spasm persisted for the entire hospital course. However, the albumin in the urine disappeared very rapidly after delivery and within twenty-four hours was absent. Study of the patient's circulating bile acids immediately prior to operation revealed a level of 1.5 mg. per cent against a control of 0.82 mg. per cent. The patient's bilirubin was entirely normal, producing an immediate reading of 0.1 mg. and a late reading of 0.3 mg. Pruritus disappeared almost immediately after delivery and did not reappear. The puerperium was otherwise uneventful.

Discussion

E. L. Potter, in her book on Rh, makes reference to a maternal syndrome associated with isoimmunization as follows:

> "There is a small group of women, however, who give birth to infants with hemolytic disease who show symptoms simulating toxemia but in whom the condition appears to be specifically related to the existence of hemolytic disease. In these patients pregnancy usually progresses normally until the seventh or eighth month, and then a sudden rapid increase in weight is associated with visible edema. A moderate amount of albumin is usually excreted in the urine. The systolic blood pressure almost never rises above 140. The fetus ordinarily dies soon after the onset of symptoms and is retained for varying lengths of time before it is delivered. We have not observed this syndrome in our series except in women who have previously delivered at least one other child with hemolytic disease."[4]

There can be little doubt that the three patients described above fall into this group. Mrs. H. L., the first of the three, fitted Potter's description exactly. Mrs. H. M., the second, while meeting all the other criteria, presented a new complaint. This pruritus, which was so persistent and which, the patient herself was convinced, foreshadowed the death of the fetus in utero, was never satisfactorily explained. The third patient in turn presented all these findings, and in addition, subsequently developed manifestations indistinguishable from severe acute toxemia of pregnancy.

The determinations of blood bile acids must be presented without comment. Although they were obtained in the search for a cause of the itching, there is no information as to normal or abnormal control values in pregnancy by the same method with which to compare them. The determinations of serum bilirubin make it appear unlikely that the itching is associated with jaundice.

It is certain that these are not the ordinary events of fetal death in utero. No such syndrome has been described in association with fetal death due to other causes,[1] and in patients with severe isoimmunization and fetal death in utero, the latter event ordinarily occurs in complete clinical silence. On the other hand, the observation of the present cases in a small group of sensitized wom-

(Continued on Page 31)

FETAL SALVAGE IN PREGNANT DIABETIC PATIENTS

T. PETRICK, M.D.
Saint Paul, Minnesota

As in all obstetrical problems in recent years, the question of maternal mortality has largely been pushed further and further into the background due to improved techniques for assuring maternal survival. The result has been an emphasis upon the search for methods of increasing fetal salvage. Because the survival rate for babies of diabetic mothers is known to be low, this field has produced extensive investigation and argument. The question resolves itself into three main points for purposes of exploration:

1. Control of the maternal diabetes.
2. Maintenance of intra-uterine life and delivery of living infant.
3. Survival of the infant in the neonatal period.

The first lies largely within the province of the internist. No attempt will be made to outline the problems of diabetic management. This, however, is of utmost importance to the fetus, as has been shown by many workers. Priscilla White[5] in 1943 said that "acidosis *per se* is not important as a lethal factor in producing fetal death." This has not been the experience of recent investigators. Hall and Tillman[1] have shown that the reverse is true. In their series of nine pregnancies exhibiting acidosis, six resulted in the loss of the fetus within a few days of the episode of acidosis. Although this is a small group, it has been the experience of others. For example, at the Charles T. Miller Hospital in a period of five years, eleven patients in acidosis at one time or another throughout their pregnancies produced only three living infants who survived the neonatal period.

Unregulated, brittle diabetics, because of known vascular changes, are believed to be more prone to all types of toxemia of pregnancy. This factor is responsible for an even lower fetal survival rate. To further emphasize the point, patients whose diabetes is under careful control have an incidence of toxemia reported to be between 30 and 50 per cent. In one notable exception, Reis[2] has reported a group of fifty-two diabetic women having seventy-two pregnancies, in which there were only six cases of toxemia. His group, however, contained very few patients having juvenile diabetes, or any patients whose diabetes occurred before the childbearing period. This would emphasize the point that patients with long-standing diabetes are more liable to have the antecedent vascular changes which predispose their type to toxemia. The most careful control and management is necessary throughout pregnancy in these patients to hope for a successful outcome.

Our second point, the maintenance of intra-uterine life to a point where fetal survival can be expected, is also intimately connected with the previous problems. A new approach to the problem was suggested by Smith and Smith.[3] It was their opinion that the administration of estrogenic substances during the course of a pregnancy increased the fetal survival. A further step in the right direction seemed to be taken when White[4] reported her studies on the "hormonal imbalance" of diabetic pregnancies and the possibilities of using stilbesterol to correct them. Over a period of fifteen years she reported 439 viable births with a fetal mortality of 18 per cent. These cases were subdivided into three groups: (1) Eighty-four cases with "abnormal hormone values which could not be corrected," (2) 297 cases with "abnormal values which were corrected," (3) Forty-seven cases with normal hormone values.

The fetal mortality rates for the groups were 42, 11 and 5 per cent, respectively. This work seemed to demonstrate once and for all that, in diabetics, with the use of stilbesterol, a definite and marked improvement could be obtained in fetal survival.

With the passage of time, certain inconsistencies have developed, and other contradictory evidence has been presented. Reis,[2] in 1950, reporting on his series previously mentioned, had a comparable viable birth mortality rate of 13.6 per cent, without the use of stilbesterol. Hall and Tillman[1] reported a fetal mortality of 18.2 per cent in diabetic mothers cared for at the Sloane Hospital for Women in New York City from

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Read at the general staff meeting of the Charles T. Miller Hospital, Saint Paul, November 6, 1951.

Dr. Petrick is resident in obstetrics and gynecology at Charles T. Miller Hospital.

1923 to 1949. This mortality rate was also obtained without the use of stilbesterol.

It would seem pertinent at this point to quote directly from Reis' article:

> "The administration of stilbesterol in increasing daily doses is presumed to stimulate progesterone secretion, thus restoring the normal hormone balance and preventing immature and premature labor and toxemia of pregnancy. Recently Smith and Smith have shown that the administration of stilbesterol to normal, non-diabetic women resulted in larger, longer, heavier and more mature babies, with a definite decrease in the incidence of prematurity.
>
> "Sommers, Lawley and Hertig investigated the effects of this same stilbesterol therapy upon the weights of baby and placenta in the same group of women. They stated that 'weight of both baby and placenta are increased in stilbesterol-treated full-term and premature births' and that 'stilbesterol stimulates an increase in weight and presumably size of both infant and placenta.' They further found 'a more frequent occurrence of marked placental calcification and intervillous thrombosis in full-term stilbesterol-treated placentas and a definite incidence of mature chorionic villi and intervillous thrombi in the placentas of stilbesterol-treated patients who delivered prematurely.' "

He further states:

> "It is difficult to reconcile these reports. On the one hand, increasing and continuing administration of stilbesterol is used because it prevents immature and premature delivery, because it lowers toxemia, and, finally, because it is said to increase fetal salvage. Yet, in White's report, labor was terminated early in the vast majority of instances by cesarean section in the thirty-sixth to thirty-seventh weeks to prevent fetal overmaturation and placental overmaturation with their accompanying obstetrical problems of oversize and overweight fetuses and of fetal death in utero. On the other hand, the same increasing and continuing administration of stilbesterol is observed by Smith and Smith to result in larger, longer, heavier, more mature babies.
>
> "Furthermore, stilbesterol therapy would seem to be contraindicated in the diabetic, pregnant women to avoid rapid and early senescence of the placenta and to prevent some of the inexplicable fetal deaths in utero which are known to occur in the later weeks of pregnancy.
>
> "Further confusion concerning this entire problem results from a recent report by Davis and Fugo, who could find no evidence that stilbesterol stimulates production of steroid by the corpus luteum or the syncitium."

In the light of this, it is sufficient to say that our small series of twenty-six pregnancies in seventeen patients at the Miller Hospital had a fetal salvage almost exactly the same whether treated with stilbesterol or not. If any trend is apparent in our series, it would seem that the patient not receiving stilbesterol had a better chance to obtain a surviving infant.

With these things in mind, it would appear that the reasons originally proposed to validate the use of stilbesterol have not been borne out by either experimental evidence or improved fetal survival. Study of the literature, together with an analysis of our own experience, justifies the opinion that the administration of stilbesterol in the pregnant diabetic woman, as recommended by Smith and Smith,[3] offers little or nothing at all toward an improvement in fetal survival.

This opinion does not dismiss the well-known fact that infants of diabetic mothers have the unexplained propensity to expire *in utero.* Since this disaster tends to occur more frequently after the thirty-fifth week of gestation, the question arises as to the exact etiology. Is it due to the diabetes *per se?* Is it due to a greater incidence of toxemia? Further, if the infant survives to the point of parturition, is the poor fetal survival due to the tendency for infants to be greatly oversized, with resultant traumatic deliveries? With these thoughts in mind, it is understandable that many obstetricians believe that the fetal survival can be improved by delivery several weeks before term. There is fairly universal disagreement as to when and how the delivery should be accomplished.

In any obstetrical problem, there can be no absolute and set policy in the management of all patients. The number of variable factors, especially in pregnant diabetics, is too great to permit the establishment of an inflexible rule.

The proposal of one group, such as White's to section almost all patients a month before term, falls into such an inflexible category, ignoring as it does the possibilities of medical or surgical induction of labor in the proper patients as an alternative. White, in her series of 439 viable births, sectioned 75 per cent of her patients at about thirty-six weeks, for a fetal survival of 82 per cent. One-half of the fetal losses in this series, however, were in the neonatal period, indicating that prematurity may have played a large part in the failure of the infant to survive. Hall and Tillman reported 104 viable births with a fetal survival of 81.8 per cent. In this series only one patient in five was sectioned and then only for obstetrical indications. Only 10 per cent of their fetal losses were in the neonatal period. In a comparison of the two series, Hall and Tillman came to the conclusion that if they had sectioned fifty more patients according to the plan of White's they might have obtained five more living infants. Reis, in reporting his seventy-two viable births, sectioned about one-half of his patients. All of these section infants survived and the great majority of these operations were done at the thirty-sixth to thirty-eighth week.

On the basis of what has just been said, it would seem that a definite criterion can be established for the chance of delivering a living and surviving infant. One must deliver the infant by section or induction of labor before fetal death *in utero*. Since it is impossible to determine just when this catastrophe will occur in any given patient, the choice of the time and type of interference must be left to the obstetrician in charge.

The actual choice of the procedure for the individual case will depend upon physical findings, keeping in mind the added factors of toxemia and uncontrollable diabetes. The use of cesarean section at the thirty-sixth week enjoys the most universal popularity. This procedure, however, must only be done after the diabetes is well regulated. It would seem to us that the solution of this particular problem can be outlined in the following manner.

If the patient is a primipara, with what may be an oversized fetus, there is very little question but that the patient is best handled by cesarean section. This is assuming that the danger of delivering a premature child is ruled out by careful estimation of fetal size. It is admitted that the estimation of fetal size is uncertain at best. In the diabetic patient it is made more difficult by the presence of edema and hydramnios.

Cesarean section does not seem justified in patients who are suitable candidates for medical or surgical induction of labor. The indications for these procedures are multiparity, a well effaced and dilatable cervix and a well engaged vertex. Should these conditions be present at the thirty-sixth to thirty-seventh week, one is certainly justified in attempting delivery from below. The question of how to deliver the non-inductible multipara is a difficult one. From our studies we are led to the conclusion that the best course is to resort to cesarean section. When to do the procedure depends upon consideration of the factors previously mentioned.

Twenty-two pregnancies in our series of twenty-six reached the point of viability or beyond. Thirteen of those patients were delivered from below. In this group there were six stillbirths, two neonatal deaths and five surviving infants for a fetal survival rate of 38.5 per cent. Nine patients were sectioned, seven at thirty-six weeks, resulting in seven surviving infants for a 78 per cent fetal survival rate. This improved survival rate for section infants does not give a true representation of the problem, since all the very premature infants and those that died *in utero* were delivered by the vaginal route. If we eliminate all fetuses delivered or dead *in utero* before the thirty-sixth week, we arrive at a total of nine vaginal deliveries with five surviving infants.

Before discussing the third point of our paper, one interesting and vital point should be made and emphasized. It is now possible to make a flat, uncompromising statement that the incidence of congenital defects is not increased in the infants of diabetic pregnancies. In a survey of the literature in which such material has been reported, plus the cases from our hospital, compromising a total of 257 pregnancies, two major congenital defects were found. Both were forms of congenital heart disease. In addition, there was one case of hypospadias of minor degree. Thus with a maximum total of three congenital defects in 257 cases, the incidence is found to be one in eighty-six, the same figure reported for all normal, non-diabetic pregnancies. This cannot be too strongly emphasized to correct the older, unsubstantiated impression. This is certainly of vital interest to the diabetic patient contemplating pregnancy.

The last point of our paper deals with the survival of the infant in the neonatal period. In this, opinion seems to be fairly unanimous. All infants of diabetic mothers, regardless of size, mode or time of delivery, should be treated as prematures. The routine use of incubation, oxygen, oral or subcutaneous glucose and occasionally gavage seems to be the standard procedure. The difficulty of obtaining statistical evidence in favor of one form of therapy over another is increased by the additional factor of varying degrees of actual prematurity.

Experimental work with micro-sugar determinations shows that those infants have a faster, further drop of blood glucose than do infants of normal, non-diabetic mothers. Also, the return of the blood sugar levels to normal is slower in these infants than in the normal infants. The need for glucose, whether oral or subcutaneous, is obvious. Since these infants have an active sucking reflex and since they seem to retain oral feedings well, there is often little need for parenteral routes of administration. However, a minimum of fluid is to be used for administration, since some degree of dehydration is useful in treating these often edematous infants.

In summary, one can merely state that the problem of diabetes mellitus complicating pregnancy is serious. The solution to all the problems is not at hand. Improvement in fetal salvage in the diabetic patient demands constant observation, through care and regulation. This can be accomplished through vigorous action on the part of the internist, the obstetrician and the pediatrician.

References

1. Hall, Robert E., and Tillman, Alvin J. B.: Diabetes in pregnancy. Am. J. Obst. & Gynec., 61:1107, 1951.
2. Reis, Ralph A.; De Costa, Edwin J., and Allweiss, M. David: The management of the pregnant diabetic woman and her newborn infant. Am. J. Obst. & Gynec., 60:1023, 1950.
3. Smith, G. Van S., and Smith, O. W.: Influence of diethylstilbesterol on progress and outcome of pregnancy as based on comparison of treated and untreated primigravidas.
4. White, P.: Symposium on diabetes; pregnancy complicating diabetes. Am. J. Med., 7:609, 1949.
5. White, P., and Hunt, H.: Pregnancy complicating diabetes. J. Clin. Endocrinol., 3:500, 1943.

A MATERNAL SYNDROME ASSOCIATED WITH ISOIMMUNIZATION AND FETAL DEATH IN UTERO

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en and Potter's prior observation of another group of similar patients make it appear likely that the syndrome is either being overlooked by students of the problem or being classified as an incidental acute toxemia of pregnancy. The symptom of pruritus, which is never associated *per se* with pre-eclamptic toxemia, indicates a definite difference between this syndrome and toxemia. Potter arrived at the conclusion that this is a separate entity without noting any instances of itching.

What is the explanation of this striking maternal hydrops? The data at the moment are inadequate to justify even a guess as to the answer. The edema does not differ from that seen in pregnancy under other circumstances. The most that the present report can hope to do is to stimulate detailed scrutiny of this syndrome, with the expectation that such study may aid in the clinical management of what remains an untreatable group among women with isoimmunization.

Summary

1. Three patients are presented who manifested a maternal syndrome in pregnancy complicated by isoimmunization. The clinical picture is characterized by a history of previously affected infants, appearance in the last trimester of sudden weight gain and manifest edema and subsequent fetal death in utero. Two of the three patients in addition complained of severe generalized pruritus, and one of these developed a severe acute toxemia following delivery.

2. It is suggested that this syndrome, while uncommon, is either being overlooked or being classified as toxemia of pregnancy. Since it appears to be uniquely related to the most severe form of isoimmunization complicating pregnancy, meticulous study of these particular patients is warranted.

3. At present, no explanation of the etiology of the syndrome can be offered.

References

1. Dippel, A. L.: Death of foetus in utero. Bull. Johns Hopkins Hosp., 54:24-47, 1934.
2. Eastman, N. J.: Williams Obstetrics. Ed. 10, p. 1014. New York: Appleton-Century-Crofts, Inc., 1950.
3. Greenhill, J. P.: Principles and Practice of Obstetrics. Ed. 10, p. 522. Philadelphia: W. B. Saunders Co., 1951.
4. Potter, E. L.: Rh . . . Its Relation to Congenital Hemolytic Disease and to Intragroup Transfusion Reaction. Pp. 146-147. Chicago: The Year Book Publishers, Inc., 1947.
5. Weiner, A. E.; Reid, D. E.; Roby, C. C., and Diamond, L. K.: Coagulation defects with intrauterine death from Rh isosensitization. Am. J. Obst. & Gynec., 60:1015-22, 1950.

POSTPARTUM HEMORRHAGE

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THE subject to be discussed here is one which the majority of physicians have encountered in the past, and can reasonably expect to re-encounter. Eastman, in his textbook, states, "In modern obstetrics, no woman should die from postpartum hemorrhage.[3] This is a fair assumption, although no rigid set of rules can be formulated to guard against postpartum hemorrhage in 100 per cent of the patients. It would seem, rather, that certain precautions, together with steadily improving technique and new drugs, may be expected to bring us to an irreducible minimum of casualties.

Postpartum hemorrhage is defined arbitrarily as blood loss in excess of 600 cc. The rate of occurrence is in the neighborhood of 6 per cent, whereas blood loss in excess of 1,500 cc. is seen in about 1.5 per cent. Loss of over 2,000 cc. is present in .07 per cent and fatal hemorrhage occurs in about one delivery in every 3,300 patients. In a recent article, with an analysis of 6,000 deliveries, the average blood loss is reported to be 265 cc. in primiparae and 191 cc. in multiparae[2]. It was also shown that with episiotomy, or perineal lacerations, an additional average loss of 110 cc. occurs.

Predisposing Causes.—Predisposing causes can be divided into those under the direct control of the physician, and those beyond his control. In the former category are: operative deliveries, in which hemorrhage is three times more common; deep ether anesthesia; prolonged labor with maternal exhaustion; and, finally, mismanagement of the third stage. It has been said that the most common mismanagement of the third stage is in trying to hurry it.[1] In the latter group, that is, beyond the control of the physician, the most important predisposing cause of postpartum hemorrhage is the fetal size. The incidence of hemorrhage definitely increases with large babies, multiple pregnancy, and hydramnios.

Generally speaking, blood loss at levels of 600 cc. is not a serious matter. As mentioned previously, about half this amount is lost in delivery of an average primipara. It is worthwhile considering that when other conditions of blood loss exist, the loss of an additional 100 cc. or more from an episiotomy may be enough to put the patient into the hemorrhage group. Loss of 1,500 cc. is always a serious matter, and these patients must be carefully attended. An important point is that whereas a patient in good physical condition can withstand a considerable blood loss, another patient who has had an antecedent anemia, or one in whom prolonged labor has produced marked dehydration, may go into shock following the loss of a relatively small quantity of blood.

Etiology.—In order of frequency, the causes of postpartum hemorrhage are uterine atony, responsible for 90 per cent of the incidence; retained placental fragments, to blame in another 6 per cent; and lacerations of the birth canal. Of lesser frequency are rupture of pelvic varicosities, abruptio placentae, and placenta previa.

The first of these, uterine atony, is seen commonly following over-distention of the uterus, such as in the presence of an excessive-sized fetus, multiple pregnancy and hydramnios. Prolonged labor, as in primary and secondary inertia, frequently results in atony. Multiparity is another well-known cause. Fortunately, in all of these cases, the danger is predictable and preparations can be made well in advance in most instances to combat the atony if it develops.

Retention of secundines certainly occurs with great enough frequency to call for routine and careful inspection of the placenta. The finding of a placental defect or evidence of a succenturiate lobe is indication enough to prepare for intra-uterine inspection.

Most perineal lacerations are readily recognized and therefore do not constitute much of a problem. Many authorities suggest cervical inspection following all deliveries, but it is probably enough to undertake inspection only following the operative deliveries. The tears that extend into the fornices are quite dangerous, and even when diagnosed, the repair is one which requires infinite patience and care, with the bloody field and inadequate exposure.

From the Austin Clinic, Austin, Minnesota.

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Clinical Picture.—Postpartum hemorrhage is seldom a massive outpouring of blood, but more often a steady dripping which on occasion may give a feeling of false security. The onset of shock develops commonly only after a period of a few hours, and often with astonishing rapidity. Pulse and blood pressure may compensate nicely for a time and then suddenly the pulse becomes rapid and weak, the pressure difficult to obtain, the patient experiences chilliness and air hunger, and, finally, loss of consciousness may supervene only shortly before death.

Diagnosis.—If bleeding follows completion of the third stage of labor, and if the fundus is firmly contracted, lacerations of the cervix and vagina must be sought for. The color of the blood aids in the diagnosis, with dark, venous blood more likely uterine in origin, and bright red blood probably from lacerations. Inspection of the cervix is definitely required following all operative deliveries. The passage of numerous clots, as well as sudden spurts of bleeding continuing after the fundus has firmly contracted down, will suggest retained placental fragments. Retained fragments plus accumulating clot in themselves may cause atony. In any event, if there is reasonable doubt, preparation for uterine exploration is made.

Once alerted to the possibility of hemorrhage, intravenous fluids are started at once. Cross-matching is carried out. An ampule of ergotrate and one of pitocin are given, the former intravenously. The operator obtains sterile gloves and gown while the perineum is being cleaned and fresh draping is being done. Light ether anesthesia or nitrous oxide will probably be required for exploration of the uterine cavity, though previous anesthesia may preclude the necessity for more. Deep anesthesia is contra-indicated. An assistant keeps up constant massage of the fundus, and, finally, the operator manually examines the uterus and removes any fragments found.

Following this procedure, if bleeding continues, if inspection reveals no lacerations and if the uterus shows no tendency to contract, the operator is forced to make a hasty decision. If shock is not too prominent a feature, if exhaustion and infection are not strong deterrents, and if the parity of the patient does not influence the judgment of the operator, a hysterectomy at this juncture may be a satisfactory solution of the problem. Short of this extreme are two much simpler alternatives, each with its own advocates. One is intra-uterine tamponade, widely practiced in this country; the other is bimanual compression of the uterus, long an established procedure in England, and steadily gaining adherents in this country. Tamponade, of course, consists of the placing of layer-on-layer of sterile gauze within the uterus, from above downward and with the greatest of caution. The alternate procedure, bimanual compression, is carried out by placing the fist of one hand within the vagina, snugly against the anterior uterine wall, while the other hand, on the abdomen, presses downward to meet the internal hand. This will effectively and immediately control the bleeding and it can be maintained indefinitely. The uterine pack can be used following curettage for incomplete abortion, but the relatively solid wall of a uterus at two to five months' gestation makes a better back-stop than a term uterus, especially one which has been previously distended, or thinned out from many preceding pregnancies, because of the inability of such a uterus to contract when forcibly distended. Those who argue against the pack contend that it is unphysiological, that it predisposes to infection, and that bleeding can actually occur between the pack and the uterine wall.

Finally, it might be well to review the management of the third stage. There is a fairly wide variance of opinion here, and no one technique will serve in all instances. Many favor giving oxytocics immediately after delivery of the head, others after delivery of the shoulder, and still others after delivery of the body. In breach presentations, it is unwise to administer any oxytocic until extraction is completed. Other authorities withhold oxytocics until completion of the third stage.

It is difficult to criticize any of the various methods, each seeming to produce results in the hands of its proponents. When ergotrate is given, it produces better results intravenously and should be given over a period of thirty seconds. If given after the delivery of the head, the attendant should wait for the stimulus to reach the uterus, and allow the contraction to aid in delivery of the body. It is argued that oxytocics employed at this stage speed up the separation of the placenta. It does seem that occasionally a placenta will be trapped by a firmly contracted uterus following too early usage of oxytocics. However, there

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AN INVESTIGATION INTO THE ETIOLOGY OF NAUSEA AND VOMITING OF PREGNANCY

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BECAUSE of the great number of patients coming to the obstetrical service of the University of Colorado Medical Center with emotional problems, a psychiatrist has been assigned permanently to the service. After being on the service but a short time, the author was impressed by three observations: (1) that nausea and vomiting to some degree is such a common complaint, (2) that individual observers have such different ideas as to the etiology of the condition, and (3) that practically any medication or treatment is helpful.

Because of the vastly different concepts of the etiology, the author became interested in pursuing the subject further to see what additional information could be obtained toward establishing the etiology on a firmer basis.

The condition varies from a slight feeling of nausea on arising in the morning and a distaste for food to a condition of severe dehydration, inanition, and apparent toxemia. It is referred to in the standard textbooks of obstetrics as nausea and vomiting of pregnancy only until it becomes vicious enough to endanger life; then it is called hyperemesis gravidarum.[4,12,37]

A review of the English literature reveals that there are two schools of thought pertaining to the symptom. There are those who believe that the etiology is primarily organic, and there are those who subscribe to a psychogenic etiology with "feelings of rejection" being at the core of their theory.

The organic etiologies and their recommended treatments are multiple, and include disturbances of carbohydrate metabolism,[8,11,38] vitamin deficiencies,[39] endocrine imbalances, [34,35,36] protein intoxication,[5] various sensitization phenomena, including sensitization of the mother to the semen of the spouse,[9,21] reverse peristalsis of the gastrointestinal tract,[1] and unknown "toxins."[4,12,28,37] Although individually many of the investigators mention changes in the blood chemistry to substantiate their respective theory, their results have usually not been confirmed by other observers. Stander,[37] in summarizing these observations, states:

> "In general, it may be stated that there is little change in the mild but considerable in the severe. The changes in the severe may be attributed to dehydration and tissue destruction."

As can be surmised because of the multiple etiologies there are a multitude of treatments and remedies. These include hormones,[25,34,35,36] vitamins,[16,39] ultraviolet irradiations,[19] electrotherapy, [23] Dramamine®,[6] antihistaminics,[9] and various and sundry diets.[7,12,37] The treatments are particularly interesting in that they vary so much and yet that all the authors report phenomenal cure rates.

It must be quite obvious that no definite organic etiology or cure for this symptom has been discovered since so many authors have produced so many different theories and treatments.

Since no organic cause has been found to be definitely etiological in itself, it seems probable that an emotional factor may be involved in some degree in the development of this symptom.

The literature[4,12,37] mentions briefly that Kaltenback as early as 1891 believed that vomiting of pregnancy is usually a manifestation of a neurosis, somewhat allied to hysteria and readily amenable to suggestive treatment. Atlee also quotes Ferenzi in this connection:

> "The occurrence of intractable vomiting in early pregnancy, which has always been given so many toxicological explanations, is still more comprehensible to the psychoanalyst. One is dealing with a defense or rejection tendency, directed against what is unconsciously felt as a foreign body, but displaced (in the psychological sense) and carried out in regards to the gastric contents. Only in the second half of pregnancy, when the movements of the child no longer permit even the hysterical woman to deny the genital location of the changes and sensations does the inclination to vomit cease."

William Menninger[30] in a more recent article substantiated this statement when he wrote:

> "Vomiting of pregnancy is a more transparent symptom of rejection of pregnancy than many other neurotic

> symptoms . . . in my experience 50 per cent of obstetricians querried regard the symptom as psychologically motivated, another 25 per cent regard psychological factors as being very important."

One of the earliest clinical reports discussing the psychiatric treatment of nausea and vomiting of pregnancy and citing cases appeared in 1911. Sir Allan Hurst,[20] writing in *Lancet,* stated categorically that vomiting of pregnancy is always hysterical and that all cases can be cured by psychotherapy.

More recently the psychiatric literature has had many clinical reports of successful treatment of nausea and vomiting of pregnancy with some form of psychotherapy.

Flanders Dunbar[10] in an excellent review of the psychiatric literature in her book, *Emotions and Bodily Changes,* quotes many authors who believe the symptom is primarily psychogenic and that it can be treated successfully with some type of psychotherapy. These quoted authors explain that in some cases only suggestion is necessary while in others much longer and deeper forms of psychotherapy are indicated. This, of course, is in contradistinction to other writers who believe there are two types of nausea and vomiting—neurotic and organic—and cases are divided into these two groups on the basis of whether or not there is immediate response to suggestion.

In spite of the fact that many authors adhere strongly to their belief in an organic etiology for nausea and vomiting, the majority of them mention a neurotic component when they write of specific treatment. Beck,[4] who emphatically believes in a basic toxic etiology, states:

> "Suggestion should be liberally and seriously added to all measures."

It is obvious from the review of the literature presented that there are two schools of thought regarding nausea and vomiting of pregnancy. One considers the etiology as psychogenic, and the other considers the etiology as basically organic. As with all similar symptoms or illnesses, this sort of dichotomy is unrealistic and untrue. It does appear, however, from studying the literature that in most cases the most important factor in producing the end result is psychogenic and the most important factor in its alleviation is psychiatric. Stander,[37] who believes that the basic cause is toxic, says:

> "In the great majority of cases the toxic factor acts merely as a predisposing cause in neurotic women and becomes negligible after the nervous equation has been controlled. Neurotic vomiting makes up the bulk that we are called upon to treat."

Acceptance of the fact that nausea and vomiting of pregnancy is partially or wholly psychogenic does not mean that a patient having this symptom necessarily has a neurosis. In the author's experience this is one of the main reasons that the psychogenicity of this symptom is not "really" accepted by the physicians practicing obstetrics. These physicians do give "lip-service" to the concept but later will add, "I do not really believe it because my wife (or some close friend or my mother) had it, and I am sure she is not a neurotic." William Menninger[30] states, regarding this point:

> "The psychiatrist does not regard transient appearance of one or even several neurotic symptoms as indicating the presence of a neurosis, any more than râles are justification for the establishing of a diagnosis of pneumonia."

In other words, a single isolated symptom such as nausea and vomiting of pregnancy may indicate nothing but a transient unimportant disturbance or, on the other hand, a clinically severe pathologic condition.

Experimental Design and Results

The present study was conceived as an investigation to determine if patients with nausea and vomiting of pregnancy differ from those without the symptom regarding their feelings about five areas of their life: (1) pregnancy, (2) delivery, (3) marriage and family relationships, (4) children, and (5) spouse. From reading the literature, one gets the general impression that patients with nausea and vomiting are "neurotic" in their attitudes toward these areas while those patients without the symptom have "healthy" attitudes.

Patients for study were obtained from the obstetrical service of Colorado General Hospital and from employes and acquaintances of employes of the Colorado Medical Center. They were otherwise unselected. The only information given those who agreed to participate in the survey was that an investigation was being carried out on pregnant women, that it entailed seeing a psychiatrist for a short period of time, and that he would give them a psychological test.

TABLE I. COMPARISON OF GROUP I[*] WITH GROUP II[**] REGARDING TOTAL NUMBER OF RESPONSE INTERPRETATIONS IN THE TEST AREAS

		Pregnancy	Delivery	Family & Marriage	Children	Spouse
Group I	P	1		10	32	12
	R	12	7	12	10	20
	A	3		9	15	4
Group II	P	1	1	14	32	15
	R	13	9	19	11	25
	A	5		10	7	8

Key:
P—positive response
R—rejecting response
A—ambivalent response
[*] Those patients without nausea and vomiting of pregnancy.
[**] Those patients with nausea and vomiting of pregnancy.

TABLE II. COMPARISON OF GROUP I[*] WITH GROUP II[**] IN RELATION TO TOTAL NUMBER OF RESPONSE INTERPRETATIONS

	Group I	Group II
P	55 (37%)	63 (37%)
R	61 (41%)	77 (45%)
A	31 (22%)	30 (18%)
Total	147 (100%)	170 (100%)

Key:
P—positive response
R—rejecting response
A—ambivalent response
[*] Those patients without nausea and vomiting of pregnancy.
[**] Those patients with nausea and vomiting of pregnancy.

When the patient arrived for her appointment, she was given a series of twelve pictures and told to tell a story in her own words concerning what is happening in each picture, what led up to the picture, and what is going to happen.[*] The pictures were chosen because the author felt they would bring out more of each subject's feelings regarding certain aspects of her life better than direct questioning in a psychiatric interview.[**] Sometime during the interview the subject was asked a few identifying questions including whether or not nausea and vomiting was present during the first trimester of pregnancy and whether or not the pregnancy was planned. On the basis of the presence or absence of nausea and vomiting to any degree the subjects were divided into two groups of ten each: Group I—those without nausea and vomiting; and Group II—those with nausea and vomiting.

The responses were interpreted and tabulated by the author in relation to the various areas as being positive, rejecting, or ambivalent. There were no essential differences in the responses of the subjects in the two groups taken either individually or collectively. The latter is well brought out in Tables I and II. For example, in the group with nausea and vomiting taken as a whole there were 170 responses, with 37 per cent being positive, 45 per cent rejecting, and 18 per cent ambivalent, while in the group without nausea and vomiting there were 147 responses, with 37 per cent being positive, 41 per cent rejecting, and 22 per cent ambivalent. Whether the pregnancy was planned or not seems to have no bearing on the presence or absence of nausea and vomiting since the findings are about the same in both groups—six unplanned and four planned in Group I, as compared to seven unplanned and three planned in Group II.

Discussion

Since it is fairly well accepted that patients with nausea and vomiting of pregnancy are rejecting of certain aspects of their pregnancy, it remains to be explained why the data reveals that the group without the symptom are also rejecting and why the patients in this group do not vomit. As to why they do not vomit, two explanations are possible: firstly, the subjects in this group may have a higher vomiting threshold, which may well have both psychogenic and organic components; or secondly, these subjects may handle their feelings of rejection by other symptoms or through some type of acting out behavior. Concerning why the responses in both groups are so much alike, it is obvious that the common factor in both groups is a state of pregnancy.

Concerning "feelings" in "normal" pregnancy, Hirst and Strousse[18] write as a result of studying 100 pregnant patients as follows:

> "From this it may be deduced that most women are more anxious during the period of pregnancy and that the type of anxiety is chiefly conditioned by the economic and social group from which they were drawn. . . . The specialized types of anxiety were divided into four groups: (1) anxiety related to economic security, 75 per cent; (2) phobias, 16 per cent. . . .; (3) anxiety related to husband, 7 per cent. . . .; (4) anxiety relating to other members of the family, 10 per cent. . . . In the group of fifty cases adequately followed up after childbirth, even though the economic situation was unchanged, there was a definite lessening of anxiety in forty cases."

Apparently the patient's anxiety over the economic situation during pregnancy is just a manifestation of some underlying conflict.

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[*] Based on the method of the "T.A.T." Morgan, C. D., and Murray, H. A.: A method for investigation phantasies: the thematic apperception test. Arch. Neurol. & Psychiat., 34:289-306, 1935.

[**] One of the patients was chosen by the author as a candidate for psychiatric treatment, and later it was noted that the feelings evidenced in the test were the ones that actually concerned her.

W. Menninger[30] emphasizes the point that multiple changes occur in a pregnant woman and that the result of these changes may be evidenced by other symptoms besides nausea and vomiting.

> "Even with complete willingness for the role there are so many changes in the physiological and social life of the woman that no prospective mother escapes from the emotional stresses that result from these changes. There are probably hormonal changes, which, even without a tumor of the abdomen, might theoretically account for some emotional changes from the normal. The pronounced readjustments required by this growing tumor—the disturbing of her activities and social relationships, the changes in her relationship with her husband, her wounded pride because of her 'deformity'—all are realistic causes for her emotional distress. The social status is an important determinant in the intensity of these maladjustments. For the social butterfly the 'figure' is all important; for the peasant laborer it is of no importance . . . in our culture even in the ideal situation of an intelligently desired pregnancy the woman may be expected to display some transient evidences of rejection or denial of the pregnancy. In every woman then we may expect positive and negative emotional attitudes to express themselves, sometimes fleeting, sometimes prolonged in duration—and these attitudes will be manifested in definite disturbances in her reactions and feelings. The specific reactions and disturbances may be understood only in terms of the life situation of that individual."

The author of this paper feels his experimental work validates Menninger's concept that all women are rejecting in some degree of their pregnancy, and that the effects of these feelings vary with the "life-history" and with the constitution of the pregnant woman concerned.†

The acceptance of this concept and the author's findings in accordance with it makes clear why some pregnant patients vomit and some do not, and why the labeling of the former as "neurotic" is not justifiable.

Summary

1. Nausea and vomiting of pregnancy occurs in one-half to two-thirds of pregnant women. It is called hyperemesis gravidarum when it becomes serious enough to endanger life.

2. The conclusion is reached from studying the literature that emotional factors, namely, feelings of rejection, are partly or wholly responsible for the development of nausea and vomiting of pregnancy and that the success in its treatment, reported by all authors, is due to suggestion.

3. Psychiatric study of ten patients with nausea and vomiting of pregnancy and ten patients without the symptom and comparing them individually and collectively reveals no essential difference in their attitudes toward important aspects of their life, namely, pregnancy, delivery, marriage and family, children, and spouse.

4. The explanation of the finding in this study that both groups react similarly to the areas tested is postulated as being due to the common factor in both groups—pregnancy.

5. The reason why one group manifested nausea and vomiting of pregnancy and the other did not, although both groups had about the same amount of rejecting feelings, may be explained as being due: (1) to different vomiting thresholds, or (2) to their handling their feelings of rejection through other channels.

6. The common practice of labeling pregnant women as neurotic just because they have nausea and vomiting with their pregnancy is not supported by this study.

References

1. Alverez, W. C., and Hosai, K.: Reversed gradients in the bowels of pregnant animals. Am. J. Obst. & Gynec., 19:35, 1930.
2. Atlee, H. B.: Pernicious vomiting of pregnancy. J. Obst. & Gynec., Brit. Emp., 41:750, 1934.
3. Bandstrup, Ebbe: Some problems concerning the aetiology and treatment of hyperemesis gravidarum. J. Obst. and Gynec., Brit. Emp. 46:700, 1939.
4. Beck, A. C.: Obstetrical Practice. Pp. 525-530. Baltimore: Williams & Wilkins Co., 1947.
5. Calkins, L. A.: Vomiting of pregnancy. South. M.J., 21:202, 1928.
6. Carliner, P. E.; Radman, H. N., and Gay, L. N.: Treatment of nausea and vomiting with dramamine. Science, 110:215, 1949.
7. DeLee, J. B., and Greenhill, J. S.: Principles and Practice of Obstetrics. 8th ed., Pp. 348-354. Philadelphia: W. B. Saunders Co., 1943.
8. Dieckman, W. J., and Grossen, R. J.: Changes in the metabolism and their relationship to the treatment of vomiting of pregnancy. Canad. M. A. J., 8:1057, 1918.
9. Dougray, T.: Antihistamines in the treatment of nausea and vomiting of pregnancy. Brit. M. J., 2:1081, 1949
10. Dunbar, Flanders: Emotions and Bodily Changes. 3rd ed., Pp. 311-115. New York: Columbia University Press, 1946.
11. Duncan, J. W., and Harding, V. J.: A report on the effect of high carbohydrate feeding on the nausea and vomiting of pregnancy. Am. J. Obst. & Gynec., 14:3, 1927.
12. Eastman, N. J.: Williams Obstetrics. 10th ed., Pp. 633-643. New York: Appleton-Century Crafts, Inc., 1950.
13. Fitzgerald, J. E., and Webster, A.: Hyperemesis gravidarum. Am. J. Obst. & Gynec., 36:460, 1938.

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†The author well realizes that his study suggests fields of further investigation, including the following: (1) studying and comparing larger series of patients in a like manner; (2) Rorschach studies of two groups of subjects similar to the ones investigated in this paper; (3) psychiatric studies of patients before conceiving as well as afterwards.

14. Freud, S.: Interpretation of dreams in the basic writings of Sigmund Freud. P. 512. New York: Modern Library, 1938.
15. Hall, M. B.: Nausea and vomiting of pregnancy. Am. J. M. Sc., 205:869, 1943.
16. Hart, B. F.; McConnell, W. T., and Pickett, A. N.: Vitamins and endocrine therapy in nausea and vomiting of pregnancy. Am. J. Obst. & Gynec., 48:251, 1944.
17. Hawkinson, L. F.: Nausea and vomiting of pregnancy. Minnesota Med., 19:519, 1936.
18. Hirst, J. C., and Strouse, F.: The origin of emotional factors in normal pregnant females. Am. J. M. Sc., 196:95, 1938.
19. Holman, H. D.: Ultraviolet irradiations. Arch. Phys. Therap., 10:411, 1929.
20. Hurst, A. F.: The hysterical nature of so-called pernicious vomiting of pregnancy. Lancet, 1:528, 1922.
21. James, D. W.: Pernicious vomiting of pregnancy due to sensitivity to semen. West. J. Surg., 53:380, 1945.
22. Jones, Ernest: Papers on Psychoanalysis, The Phallic Phase. Baltimore: William Wood and Co., 1938.
23. Jones, T. H.: Electrotherapy in treatment of vomiting of pregnancy. J. Arkansas M. Soc., 24:169, 1928.
24. Kassebohm, F. A., and Shreiber, M. J.: Hyperemesis gravidarum. Am. J. Surg., 36:491, 1937.
25. Katz, J., and Kaufman, M. S.: Adrenal cortex in the treatment of nausea and vomiting in pregnancy. Am. J. Obst. & Gynec., 39:449, 1940.
26. Klein, M.: Psychoanalysis of Children. P. 269. London: Hogarth Press, 1932.
27. Kroeger, W. S., and De Lee, S. T.: Psychosomatic treatment of hyperemesis gravidarum by hypnosis. Am. J. Obst. & Gynec., 51:543, 1946.
28. La Vake, R. T.: A Handbook of Clinical Gynecology and Obstetrics. P. 164. St. Louis: C. V. Mosley Co., 1928.
29. Menninger, K.: Somatic correlations with the unconscious repudiation of femininity in women. J. Nerv. & Ment. Dis., 89:514, 1939.
30. Menninger, W.: Emotional factors in pregnancy. Bull. Menninger Clin., 7:1, 1943.
31. Rado, S.: Developments in the psychoanalytic conception of the neurosis. Psychoanalyt. Quart., 8:427, 1938.
32. Robertson, G. G.: Nausea and vomiting of pregnancy. Lancet, 2:336, 1946.
33. Rucker, M. P.: Treatment of nausea and pernicious vomiting of pregnancy. Virginia M. Monthly, 52:441, 1925.
34. Schoeneck, F. J.: Gonadotropic hormone concentration in emesis gravidarum. Am. J. Obst. & Gynec., 43:308, 1942.
35. Shute, E.: Hormone management of the nausea and vomiting of early pregnancy. Am. J. Obst. & Gynec., 42:490, 1941.
36. Sussman, W.: The use of parathyroid extract in the control of early nausea and vomiting of pregnancy. Am. J. Obst. & Gynec., 33:761, 1937.
37. Stander, H. J.: Textbook of Obstetrics. 3rd ed., p. 570-581. New York & London: Appleton-Century Co., 1945.
38. Titus, P.; Hoffman, G. L., and Givens, M. H.: The role of carbohydrates in the treatment of toxemias of early pregnancy. J.A.M.A., 74:777, 1920.
39. Weinstein, B. B.; Mitchell, G. C., and Sustendal, O. F.: Clinical experiences with pyridoxine hydrochloride in the treatment of nausea and vomiting of pregnancy. Am. J. Obst. & Gynec., 46:283, 1943.

VOLUNTARY INSURANCE GAINS

According to a recent report of the Health Insurance Council, at least half of the nation's population at the end of 1950 was covered by one or another type of voluntary protection against the economic hazards of sickness and accident. The Council is composed of nine trade associations in the life insurance and casualty fields, and its report indicates that all forms of voluntary health protection showed tremendous gains in the past year to score new records.

Hospital expense protection, which covers the largest number of people, was extended to 76,961,000 persons at the close of 1950. This total was 17 per cent greater than the figure of 66,044,000 just a year before. Growing public appreciation of the advantages of voluntary health protection can be seen in the fact that the number of people protected against hospital costs has more than doubled since the end of World War II.

Great strides also were made by surgical expense and medical expense coverages in 1950. Protection against surgical expense was provided to 54,477,000 persons at the end of last year as compared with 41,143,000 a year earlier, or an increase of 32 per cent. A year-to-year gain of 28 per cent was recorded by medical expense protection which covered 21,589,000 persons in 1950 and 16,862,000 in 1949. Both surgical and medical coverages also have shown larger postwar gains, with the 1950 number of persons in each case being more than quadruple the 1945 totals.

The over-all gains for the nation are reflected in the Empire State, according to the *United Medical Service Bulletin*. As of December 31, 1950, the number of subscribers was 1,948,904. This number had increased to 2,347,130 as of September 30, 1951, the latest available estimated figure.

Regarding amounts paid for medical care of U.M.S. subscribers for nine months of 1951, this figure stood at $10,563,449. Perhaps this sum may seem tiny in these days of billion dollar budgets, astronomic debt, and skyrocketing expenses, but it is nevertheless a considerable number of dollars. What does it mean in relation to costs of coverage?—Editorial, *New York State Journal of Medicine*, Dec. 1, 1951.

DERMATOSES OF THE LOWER EXTREMITIES

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STASIS dermatitis and stasis ulcer are two of the most common skin conditions of the lower extremities. For that reason the bulk of this paper will deal with their recognition and treatment. Other cutaneous changes of the legs will be discussed briefly, chiefly in their relationship to the first two conditions mentioned.

Skin lesions of the lower extremities may be part of a generalized eruption or may be peculiar to the legs alone without a counterpart elsewhere on the body. Even those lesions which are part of a generalized condition may be modified by their location and differ considerably from lesions occurring on other surfaces. Dermatoses of the legs fall into groups similar to skin conditions occurring elsewhere on the body. An accurate diagnosis in all skin diseases is achieved by a careful consideration of the important primary and secondary lesions. There are certain primary and secondary lesions which are more applicable in the differentiation of lower leg dermatoses. These are multiform erythema, papules, vesicles, scale, hyperpigmentation and ulceration. Under these divisions will be found the dermatoses for consideration here.

Stasis in itself can have multiple causes, the chief one of which is interference with return flow from the legs because of incompetent veins. It is not my object to discuss the diagnosis of venous incompetence nor its treatment except insofar as it affects the skin. In the development of stasis dermatitis one may first see superficial red brown irregular macular pigmentation. The red color is due to extravasation of red blood cells within the skin. The color change is located principally over the medial lower leg especially about the medial malleolus, and extends proximally in a more diffuse fashion from that point. This discoloration ultimately is accompanied by a certain amount of scaling, atrophy, and in many cases verrucous change and edema. The dermatitis frequently becomes exudative as it becomes more severe and develops red exudative papules around the periphery of the large plaque. Stasis dermatitis is more commonly found on one lower extremity but may be seen on both. The course of the disease is not necessarily a gradual one such as outlined here and the process may be persistent at any one of these points. At any one time one may see marked deep brown pigmentation of the leg resulting from chronic venous insufficiency. Extensive vesicular eczema or a dry scaling lichenified eczema of the leg with or without accompanying edema may also occur. The subjective symptoms may be few though there generally is some itching, at times quite severe.

Stasis eczema generally follows an irregular course with remissions and exacerbations. In many individuals a gradual fibrosis occurs in the leg with induration of the affected area. This induration adds to the already existent venous impairment and acts as a constrictive bandage on the leg. The progression is a vicious one with increasing edema which eventually fails to disappear completely when the leg is elevated. Then follows the woody edema and elephantiasic change with verrucous hypertrophy. This later stage is the late chronic one and is usually irreversible. The development of ulceration is the next step.

These ulcers generally develop within the areas of chronic eczema or cellulitis due to poor nutrition. Varicose ulcers appear more commonly on the medial side of the ankle just above the malleolus. However, they may be seen at other points of the lower leg including the lateral side. The ulceration is frequently accompanied by the superimposed infection and by infectious eczematoid dermatitis. The ulcer may vary in contour from round to one with a polycyclic border that has sloping or undermined edges. The base is usually dirty, containing necrotic material or purulent discharge. The ulcer may be single or multiple and vary in size from a superficial abrasion to one that may encircle the leg and take in a good portion of the lower leg. In most instances the free border is at the same level as the surrounding skin but may occasionally have a firm fibrotic rolled edge. This latter development appears in the more chronic ulcers and in those which show little tendency toward healing.

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Read before the Southern Minnesota Medical Association, Rochester, Minnesota, September 10, 1951.

In the differential diagnosis of lower leg dermatoses the most important of the multiform erythema group are the nodose lesions. The lesions of erythema nodosum are prone to occur on the extensor surface of the lower leg. They consist of brilliant, red, tender, often painful nodules which seem to blend into the surrounding skin, which is frequently edematous. These lesions go through a characteristic cycle, flattening out and becoming more livid. They may ultimately go through a color change which resembles a resolving hematoma. These nodose lesions may appear on the thighs, forearms, gluteal region and more rarely elsewhere. They tend to disappear within two weeks and leave no scar. The condition has been given a position of considerable importance because of its relationship to certain of the systemic diseases, namely, tuberculosis, rheumatic fever, streptococcal infections and coccidioidomycosis. Localized thrombophlebitis with its erythema, edema and tenderness also resembles erythema nodosum.

Whenever one considers erythema nodosum, the lesions of erythema induratum are brought into play. Erythema induratum appears in its own more distinct location on the posterior lower legs. It begins as deep-seated nodules which become increasingly blue in color and progress to ulceration. These deep-seated ulcers are very slow to heal. Erythema induratum is considered a chronic benign form of tuberculosis that occurs more commonly in young individuals with a greater incidence in females.

In the scaling papular group one finds a number of pruritic and nonpruritic conditions. The chief among these are lichen planus, psoriasis, and lichen simplex chronicus. Lichen planus is well known for its peculiarly violaceous polygonal papules which may occur in groups sometimes forming large plaques though the papules generally remain discrete. This is an eruption that generally has other components elsewhere on the body with a predilection for flexor surfaces and mucous membranes. Psoriasis is characterized by papules over which one finds a lamellar scale that is removed with some ease. Psoriasis also may have small guttate lesions or appear in large well-circumscribed plaques. The lesions of psoriasis are found more frequently over bony prominences, and in the scalp. The lesion of lichen simplex chronicus is represented by a well-demarcated plaque, which may be red or red-brown in color and is characterized by lichenification. The heavy scale may be a prominent feature. The principal symptoms are exaggeration of normal lines, thickening, and pruritus. When seen on the leg, the more common site is either above the lateral malleolus or in the popliteal area. This condition is most easily confused with stasis dermatitis.

The vesicular and bullous conditions of the leg are generally associated with similar conditions elsewhere on the body. The principal bullous lesions of the lower extremities are usually part of erythema multiforme, dermatitis herpetiformis, or pemphigus vulgaris. They are not readily confused with stasis dermatitis.

The last and possibly most important group consists of the conditions which are characterized either by ulceration or result in ulcerations of the leg. In passing only, one should mention such conditions as sickle cell anemia, scleroderma, and acrodermatitis chronica atrophicans. These conditions are in themselves rare and are not always accompanied by ulceration. The diagnosis of gumma always must be considered when a patient presents an ulcer of the lower extremity. Inasmuch as syphilis is a vanishing disease the presence of gumma is of lesser consideration. Certainly we should bear in mind that carcinomas can develop in any chronic ulcer. Ecthyma or traumatic ulcers do not have the accompanying signs of stasis ulcers.

The treatment of stasis dermatitis and stasis ulcer is dependent upon many factors. The most important one is correction of or support to the incompetent venous return. The vascular surgeon is better able to outline the criteria for the recognition of the various underlying conditions in varicose dermatitis and I shall not dwell on that. However, one must stress the need for correction of these factors. Correction may entail ligation of the greater and lesser saphenous veins with stripping and/or injection therapy. Many times ligation of the deep venous system may be necessary. Sympathectomy sometimes must be done in an effort to overcome the arterial and arteriolar spasm which often accompanies chronic venous impairment. From a dermatologic standpoint, however, one must point out that surgery alone will not always correct the cutaneous condition.

The dermatologic therapy is relatively simple. In the acute exudative process or infectious eczematoid dermatitis accompanying an ulcer, the best results are achieved with the use of continuous dermatologic wet compresses, rest and elevation of the extremity. At all times during the care of the acute process we are of the firm opinion that any secondary infectious factors should be eliminated. These include the care of mycotic dermatitis and good hygiene. The good hygiene tends to militate against the development of small areas of thrombophlebitis. In the acute weeping eczema wet compresses with either boric acid solution, Burrow's solution, Darier's solution or silver nitrate 1:1,000 are of value in clearing the acute process as well as controlling the infectious factor. After the edema is gone it is possible for one to go to a bland lotion or paint. Antipruritic lotions and ointments are of value. As soon as the patient is up and about good support is of greatest importance. For good support one needs a firm elastic bandage applied properly and worn throughout the time the patient is up and about and removed only when the patient retires for the night. After the infectious element and the exudative process is under control there is no better supportive measure than the Unna boot. It acts as an excellent supportive agent and prevents excoriation on the part of the patient.

Such measures as antipruritic and stimulating ointments as well as superficial x-ray therapy is sometimes important in the handling of stasis dermatitis. The role of x-ray and ointments is more important in the chronic fixed process.

The care of ulcers is more difficult because their presence indicates severe vascular damage and greater neglect on the part of the patient. The ulcer must first be cleaned up with the use of wet compresses. After the infectious element is cleared, good support as well as compression dressing of the ulcer is necessary in order to reduce the venous stasis and promote epithelialization. The type of compression bandage familiar to most everyone and commonly used is that employing a rubber sponge underneath a firm elastic bandage. There is some merit in the application of adhesive strips across the ulcer. The rubber sponge is then applied over it. The rubber sponge should extend beyond the sides of the ulcer and be held in place by a gauze bandage. Over this one should apply a firm elastic bandage. Some authorities stress the use of a heavy para rubber bandage extending from the toes to the knee with firm pressure over the sponge. It is not at all uncommon for one to apply an Unna boot to a leg that still has an open ulcer. I would say that support achieved with the boot is sometimes better than any other supportive measures utilized. The Unna boot is firm, elastic, gives clean support and stays in place without requiring any manipulation on the part of the patient. There are several commercially prepared bandages now available that have the gelatin impregnated within them and lend themselves to easier and cleaner application of the Unna boot. The bandage can be applied easily in the office and left in place for whatever length of time necessary. It can be removed and reapplied. After the ulcer is healed, good support must be maintained indefinitely.

More recently some degree of success has been achieved by the use of adenylic acid in an injectable form. My-b-den (Bischoff) is administered intramuscularly, giving 1 cc. every hour for five doses. This medication is carried out for about two days, at the end of which time the same drug is used as a suspension in gelatin and administered at daily intervals or every other day. There have been a number of instances in which the ulcer has been very resistant to treatment up until the time of the administration of this agent. Shortly thereafter the ulcer has proceeded to heal very rapidly. The total period of therapy varies up to three to four weeks.

The true solution to the problem lies in the adequate elimination of the underlying pathologic condition when and if possible. That elimination entails proper vascular surgery with correction of the stasis. These methods, meticulously carried out, will give the patients the best results one can offer for the present.

Every general hospital in this country, no matter how large or how small, can help eradicate tuberculosis in its own community. It can best do this by organizing and conducting its own tuberculosis control program. No other single agency has the opportunities for quickly finding and treating tuberculosis as has the general hospital. It has been estimated that every year about 16,000,000 persons are treated in general hospitals of this country and that 40,000 of them have undiagnosed active pulmonary tuberculosis. Since these unsuspected disseminators of tubercle bacilli are not adequately isolated, they defy tuberculosis control measures until diagnosed. Tragically, they are within a few feet of the diagnostic instrument which is not used. —SYDNEY JACOBS, M.D., *Diseases of the Chest,* November, 1951.

KYPHOSCOLIOTIC HEART DISEASE

Report of Five Cases

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and
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THIS report concerns five cases of pulmonocardiac disease that are believed to be the result of deformity of the spine. An attempt will be made to show that the injurious effects exerted upon the heart by a marked kyphoscoliotic deformity may have their origin through involvement of either the greater or the lesser circulation.

Case 1.—A forty-seven-year-old woman was admitted to the hospital in 1948 because of increasingly severe dyspnea. Moderate exertional dyspnea had been present for a few years but had become subjectively handicapping only during the two months prior to hospitalization. Extreme deformities of the spine and rib cage had been present since the age of nine. Attempts at correction of these by various orthopedic procedures had failed. Other than the noting of muscular atrophy involving all four extremities and the very obvious bony deformities of the spine and thorax, little noteworthy was recorded on physical examination. The blood pressure was 116/80. An electrocardiogram contributed nothing towards a definitive diagnosis. Radiographic studies of the chest were difficult to interpret because of the marked angulation of the spine. Fluoroscopy, however, showed the lung fields to be clear. A few days following entry to the hospital, mental confusion and apathy, alternating with periods of excitability, developed. Following this, the patient lapsed into semi-coma and evidenced a Cheyne-Stokes type of respiration. The use of digitalis and oxygen caused no improvement, and she rather rapidly expired. Post-mortem examination revealed a pronounced dilatation and hypertrophy of the right ventricle. The lungs were moderately congested and quite emphysematous in appearance. The angulation of the spine was so marked that the bodies of the mid-dorsal vertebrae were in contact with the right lateral chest wall.

Case 2.—A forty-seven-year-old man was hospitalized in 1946 with complaints of recent onset of rather severe headache. Directly following this, he had developed cough, fever, dyspnea and marked fatigability. He had had a severe bout of what had been termed "bronchitis" ten years previously and at the age of eight was said to have had poliomyelitis. A marked spinal deformity had developed following the childhood illness. The examiners noted a thin, asthenic individual who was orthopneic, cyanotic and subject to paroxysms of cough. The lungs were congested and the neck veins engorged. The blood pressure was within normal range. The patient expired thirteen hours after admission to hospital despite the use of oxygen and penicillin. Chest x-ray had shown an indeterminate type of infiltration in both lower lung fields. At autopsy, the aorta was found to follow a markedly angulated thoracic spine, but no reduction in the caliber of the aortic lumen was demonstrable. The right ventricle was hypertrophied and the circumference of the pulmonary ring was 1 centimeter greater than that of the aortic ring. A purulent-bronchitis, bronchiectasis and adhesive pleuritis were present. A fibrous pleuritis was found in both pleural cavities.

Case 3.—A twenty-four-year-old man had a kyphoscoliotic deformity dating back to an attack of poliomyelitis at the age of fifteen. An allergic asthma had been present since infancy and, following the development of the rib cage deformity, had become more troublesome. Physical examination fifteen months prior to death disclosed the presence of chronic dyspnea and a tinge of cyanosis. A diastolic murmer was present at the cardiac base which was transmitted down the left sternal border. This murmer could be altered in intensity by changing the contour of the thoracic cage. The blood pressure was not abnormal. Roentgenologic studies showed enlargement of the pulmonary conus area and there was fluoroscopic evidence of emphysema. The P waves in limb lead II of the electrocardiogram were suggestively peaked and the T in precordial lead IV was inverted. Dyspnea became increasingly more pronounced, and the terminal episode was essentially that of pulmonary insufficiency with failure of the right heart. At necropsy the significant findings included marked dilatation and hypertrophy of the right ventricle, dilatation of the right auricle, and the presence of a bicuspid pulmonary valve. The bicuspid valve did not appear to be functionally insufficient. The right lung was markedly compressed and the left lung emphysematous.

The last two cases illustrate a different set of circumstances that may conceivably exist in kyphoscoliotics.

Case 4.—A thirty-two-year-old switchboard operator, when first examined in 1933, complained of cough, dyspnea and pain in the chest of a pleuritic nature. She was a small thin woman with a marked kyphoscoliotic deformity which dated to a childhood poliomyelitis. During a seven-year period of observation, blood pres-

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Read before the Minnesota Society of Internal Medicine, Minneapolis, Minnesota, May 26, 1951.

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sure readings varying between 150/100 to 250/150 were recorded and one episode somewhat suggestive of hypertensive encephalopathy had occurred. Chest x-rays taken in the routine postero-anterior view were rather uninformative due to the extreme kyphosis and angulation of the spine. Death was apparently precipitated by a respiratory infection which had been accompanied by increasingly severe dyspnea. At autopsy all of the cardiac chambers were found to be dilated and the left ventricle hypertrophied. The lungs appeared to be compressed and the lower lobes were atelectatic. The aorta was found to follow the spine, which was markedly angulated. At the most acute angle, there was a definite and marked reduction in the caliber of the aortic lumen. It was postulated at the time of autopsy that this mechanical effect might have been partly or wholly responsible for the hypertension. Unfortunately, none of the confirmatory clinical evidences of this "coarctation-like" effect had been recorded during life. Renal insufficiency, at least to any marked degree, had apparantly not developed. Microscopically, the vascular changes in the kidneys were not too prominent and fairly well excluded any primary renal origin for the hypertension. These microscopic findings, however, could be considered quite compatible with those observed in essential hypertension.

Case 5.—A twenty-four-year-old chemist, seeking medical advice for an incidental complaint, afforded the opportunity of recording a somewhat similar variant of the kyphoscoliotic syndrome. He had developed spine and rib cage deformities following a tuberculous infection of the spine and hip during infancy. At the age of six, his parents had been told that he had a "heart murmer." At the age of eighteen, hypertension was found on routine physical examination. This finding has since been moderate in character but definitely sustained. No symptoms referable to the cardiovascular or respiratory systems have developed. On examination there were soft systolic murmurs at the apex and base and also a blowing diastolic basal murmur. This diastolic murmur has since been noted to be evanescent in character. The femoral pulses were barely discernible. The blood pressure in the arms varied from 150/100 to 170/110. In the legs a pressure of 90/60 was found on the right and no reading was obtainable on the left. There was x-ray evidence of an extreme degree of rib-notching and of moderate left ventricular enlargement. No significant electrocardiographic abnormalities were present. Exploratory thoracotomy was carried out in May, 1949, and it was found that the aorta had a normal caliber to the point where the descending portion joined the spine. At this level, which was below that of the ligamentum arteriosum, the size of the aorta was rather suddenly reduced by approximately one-half. Below this point the aorta remained narrowed to at least the level of the diaphragm. The left subclavian artery was dilated to approximately the same size as the aortic arch. The surgeon noted the presence of enormously dilated vessels about the tip of the scapula as he made his entry into the chest. No definitive surgical procedure was feasible, and to date the status of this patient remains unaltered.

In evaluating thoracic deformity as an etiologic diagnosis of heart disease, the deformity should be great enough to cause either direct mechanical interference with the heart action itself or interference with blood flow in the aorta or the pulmonary circuit.[4] The first three cases cited are believed to be examples of cor pulmonale due to interference with the dynamics of the lesser circulation. In the literature on kyphoscoliotic heart disease, the protocols presented appear to be concerned nearly entirely with this type of situation.[1,3] The rib cage deformity in itself must encroach upon functioning lung volume to some extent. However, it is a good assumption that this deformity brings into play a secondary chain of events that further hamper pulmonary function. A fixed distorted rib cage and restricted diaphragmatic movement results in a cough of poor expulsatory force. This sets the stage for the development of atelectatic pneumonitis, bronchitis, bronchiectasis, bronchopneumonia, adhesive pleuritis and pulmonary fibrosis. These are common developments in kyphoscoliotics, and they all serve to further reduce the vital capacity, to increase the ratio of residual air to vital capacity and to promote the formation of emphysema. Thus the primary difficulty with these patients is that of pulmonary insufficiency. The failure of the right heart, if it develops, is only a secondary event.

As in the presence of severe idiopathic pulmonary emphysema, it should be remembered that the use of respiratory depressant drugs or of continuous oxygen therapy may be very hazardous by interfering with carbon dioxide elimination. Any respiratory depressant may increase the already existing difficulty. The continuous use of oxygen may take away the only stimulus the patient has left to respiration, namely, the oxygen want. Both of these therapeutic agents may then produce a severe respiratory acidosis with rise in cerebrospinal fluid pressure—an event that may well have a fatal outcome.

It should also be pointed out that many of the kyphoscoliotic deformities develop during childhood. It is stated that the lungs of some adults who developed the spinal deformity during childhood have the appearance of infantile lung tissue.[3] The life span of childhood kyphoscoliotics is relatively much shorter than that of those who develop the deformity during adult life. There is at least some evidence indicating that lung tissue during the growth period can actually regenerate itself if called upon to do so, whereas in the adult the lung has only to resort to the formation of emphysema when its ventilatory function is hampered.[2] This is only one of the many reasons for attempting to prevent and correct the spine deformity as early in life as possible.

The outstanding feature of the last two cases is the presence of hypertension. In the autopsied case (Case 4), the clinical evidence that stenosis of the aorta was responsible for the blood pressure elevation is very unfortunately lacking, but the post-mortem studies suggest that such might have been the case. The clinical findings and the observations made at thoracotomy in the last case offer convincing evidence that a coarctation-like effect was in operation. The assumption is made that the hypoplastic aorta developed during the growth period as an accompaniment of the angular deformity of the spine. This, of course, is pure speculation and does not at all exclude the possibility that the malformation of the aorta was congenital in origin. There are very few cases of this kind on record, and those that have been presented are far from convincing in attempting to demonstrate the connection between the kyphoscoliosis and hypertension.

The life span of those kyphoscoliotics who develop pulmono-cardiac difficulties is shortened. This clinical observation was first made by Hippocrates. In his forty-sixth aphorism he states that "such persons as become hump-backed from asthma or cough before puberty, die." Many kyphoscoliotics may live to a ripe old age. This observation was also made by Hippocrates, i.e.: "and in those cases where the gibbosity is above the diaphragm, they become affected with difficulty in breathing. And yet many of them have borne the affection well and have enjoyed good health until old age, more especially those persons whose body is inclined to be plump and fat; a few of them lived beyond sixty years of age, but the most of them are more short-lived."

References

1. Bauchman, M.: Die Veranderungen an den inneren Organen bei hochgradigen Skoliosen und Kyphoskoliosen. Bibliotheka Med., Stuttgart, 1899, Abthiel. D., Heft 4. Quoted by Boas, E. P.: Am. J. M. Sc., 166:89-95, 1923.
2. Bremer, J. L. The fate of the remaining lung tissue after lobectomy or pneumonectomy. J. Thoracic Surg., 6:336-349, 1936.
3. Chapman, E. M.; Dill, B., and Graybiel, A.: The decrease in functional capacity of the lungs and heart resulting from deformities of the chest: Pulmonocardiac failure. Medicine, 18:167-202, 1939.
4. Nomenclature and Criteria for Diagnosis of Diseases of the Heart. New York Heart Association, 1939.

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POSTPARTUM HEMORRHAGE

(Continued from Page 33)

seems little argument that the blood loss is minimized with early usage of pitocin.

If the placenta does not separate readily and bleeding appears to be excessive, one should attempt to express it. The uterus should not be handled too vigorously, however, as fingers pressing into the wall may cause serious damage, as well as causing irregular separation of the placenta at times. Pressing downward on the fundus has also been known to cause inversion when done too forcibly. Gentle kneading of the fundus is preferred, and downward pressure of the fundus to the extent of delivering the presenting edge of the placenta to the vaginal outlet is perfectly acceptable.

Another difference of opinion exists over management of the third stage when the placenta fails to deliver within a few minutes. Many contend that as long as bleeding is absent, the placenta can be left indefinitely. The greatest extreme to this is routine manual removal. It seems best to adopt a middle-of-the-road course, which would appear to be manual removal at the end of an hour (or after estimated blood loss of more than 400 cc.), all else failing. With antibiotics available, the procedure can no longer be condemned, and can be carried out with safety.

References

1. Titus, Paul: Management of Obstetric Difficulties. 4th ed. St. Louis: C. V. Mosby Co., 1950.
2. Vant, J. Ross: Postpartum blood loss: an analysis of 6,000 cases. Am. J. Obst. & Gynec., 60:483, 1950.
3. Williams: Obstetrics. Edited by Nicholson Eastman. 10th ed. New York: Appleton, 1950.

THE ECONOMIC VALUE OF HIGH QUALITY MILK

MYRON W. CLARK
Saint Paul, Minnesota

IT takes high quality milk to produce good dairy products, but sometimes we are slow to recognize the economic value of that high quality milk. When we speak of economic value, we think of dollars and cents. Let's take a look at the record. In 1950, we produced in Minnesota 8,253 million pounds of milk. Forty-four per cent of this was sold as cream. The records show that 105,721,698 pounds of butterfat was purchased in Minnesota as sweet cream; 33,948,673 pounds of butterfat was purchased in Minnesota as Grade 1 cream; 3,861,879 pounds of butterfat was purchased as Grade 2 cream. It is required in Minnesota that at least three cents differential be paid between grades of cream. On the basis of a three-cent differential, had the nearly four million pounds of butterfat in Grade 2 cream and the nearly thirty-four million pounds of butterfat in Grade 1 cream been of high enough quality so it could have been purchased as sweet cream, the farmers who produced it could have pocketed over $1,260,000 in additional income.

As a further example, about 46 per cent of the 1950 production of milk in Minnesota was sold as whole milk. Again a look at the record shows 21,686,275 pounds of butterfat was purchased from producers as market milk, what we generally think of as bottling milk; 102,336,763 pounds of butterfat was purchased in Grade 1 milk; 10,878,428 pounds of butterfat was purchased in Grade 2 milk. Had the producers of this milk been sufficiently informed and equipped and taken care enough to have kept this Grade 2 milk in the Grade 1 class, they could have enriched their coffers to the tune of more than thirty-one million dollars, and by some stretch of the imagination if we could assume that a sizable portion of this Grade 1 and Grade 2 milk could have been marketed as Grade A market milk, the economic advantage to the producer would have been astounding. At present prices, even a small producer with 600 pounds of milk per day can receive an additional $100 a month if his product is Grade A. I think these figures indicate that high quality milk has real economic value to the producer.

We have done a creditable job of increasing production of dairy products. We have seen the production possible from one animal increase again and again until one cow has produced more than 41,000 pounds of milk a year. This very year we are producing more milk than at any other time in our history from fewer cows than we have kept for milk in any of the last twenty-five years; however, with the rapid strides and advancement that we have made in production, we have not kept pace in the quality improvement we have maintained in our dairy products, and it behooves each of us to make a greater effort along this line.

It is in the economy to the processor that the real value of high quality dairy products shows up. By way of comparison, the State of New York and the State of Minnesota have about the same number of cows kept for milk, yet the farmers of New York received last year $142,500,000 over that received by Minnesota farmers for the products of those cows. The average price paid per 100 pounds of milk in Minnesota was $2.57, while in New York the average price was $4.04. Certainly there are many other things besides quality which affected this great difference in price, but in the high competitive world in which we live, we must maintain high quality in order to insure a market for our products. For the great quantities of dairy products which we produce in Minnesota, we must find a market for more than 80 per cent of these products outside of the state, and these out-state markets which have become highly competitive are based on quality.

The National Conference on Interstate Milk Shipments, which sets up standards and agreements by which milk and milk products are shipped from one state to another, leaves no doubt in our mind that if we as a state are going to cultivate the markets we must have, it will come only through maintaining high quality.

High quality milk has economic value to the consumer. A spokesman for U. S. Public Health

(Continued on Page 72)

Read at the Public Health Conference held at Minneapolis, Minnesota, September 28, 1951.

Myron W. Clark is commissioner, Department of Agriculture, Dairy and Food, State of Minnesota.

Presentation of Distinguished Achievement Awards

To Medical and Nursing Graduates of the University of Minnesota

DURING 1951, the centennial year of the University of Minnesota, the several schools and colleges of the University were authorized by the Regents to nominate certain of their graduates, not currently associated with the University, for Distinguished Achievement Awards. The presentation of these awards was made to graduates of the Medical School and affiliated units of the University at a special faculty dinner held October 8, 1951 in the ballroom of Coffman Memorial Union. This ceremony, which was attended by almost 500 persons, was a delightful occasion. Dr. George Aagaard served as master of ceremonies and introduced the several participants in the program.

THE UNIVERSITY'S COLLEGE OF MEDICAL SCIENCES

HAROLD S. DIEHL, M.D., Dean

Never before have we had such an occasion as this at the University of Minnesota. We have had other medical faculty dinners, and on rare occasions the medical faculty has expressed itself concerning its dean. But never before has our Medical School or our College of Medical Sciences been privileged to recognize the distinguished achievements of certain of our graduates. That, Ladies and Gentlemen, is the high point of our evening. But before we get to that we have some other things to attend to that I hope will be of interest.

Possibly to our guests a word of explanation concerning the College of Medical Sciences would be helpful. The Medical School has been an educational and administrative unit in the University for more than half a century. In recent years, however, the activities of this unit have expanded so greatly that the designation Medical School did not seem an adequately descriptive title. Consequently, President Morrill and I recommended to the Regents that this unit be rechristened the College of Medical Sciences. This College is now an administrative unit that includes the Medical School, the University Hospitals, the School of Nursing, the School of Public Health, the Courses in Medical and X-ray Technology, the Course in Physical Therapy, the Course in Occupational Therapy and the Department of Continuation Medical Education.

The meeting this evening is a dinner of the faculty of this College of Medical Sciences. And the first item on our program is my report on some of the major developments, activities, achievements and problems of this unit.

The Medical School

First, for a brief report on the Medical School. For a good medical school or a good school of any type for that matter, one needs a strong and active faculty, an able student body, a sound educational program and adequate facilities and support. I feel that we have such a faculty in each of the units of this College. Tangible evidence of this is the national and international recognition constantly accorded members of our staff. I wish that I had time to tell you of the important lectureships, consultantships, offices in professional and scientific societies, and prizes and awards received by members of our faculty. Unfortunately, time is too short to permit of this.

In the past year we have lost or are about to lose some faculty members whose places it will be hard to fill. Among these are Dr. Clarence Dennis, who left us to become professor and head of the department of surgery of the State University of New York College of Medicine in New York City; Dr. Arthur Kirschbaum, who resigned to become professor and head of the department of anatomy at the University of Illinois; Dr. William Cromartie, who is leaving us to become director of laboratories in the new University Hospital at the University of North Carolina, and Dr. George Aagaard, who on January 1 will take over the deanship of the Southwestern Medical School of the University of Texas in Dallas, Texas.

We are honored that members of our staff are selected for positions of such importance at other institutions, and their leaving creates opportunities for the advancement and further development of other young men here. On the other hand, the departures of such intimate friends and valued members of our group leave voids and heartaches that are slow in healing.

As to our students: we have exactly five hundred undergraduate medical students this year. This is the first time since World War II that all classes have been completely filled. Applications for admission continue to be several times the number of places available. This does not mean, however, that we are rejecting large numbers of well-qualified applicants. On the contrary, even this year the last students selected by the Admissions Committee were accepted without great enthusiasm. They, as well as a good many others, have met our minimum entrance requirements, but they do not give great promise as medical students.

Our freshman class numbers 126, which is about twenty-six more than we should accept with our present staff, facilities, and budget. However, the current need for physicians and the large number of veterans of World War II still applying for admission caused us to stretch the number of admissions beyond the optimum number. In fact, the Administrative Committee of the Medical School, feeling that the need for physicians in connection with the national defense effort is of very real urgency and importance, indicated its willingness, if the necessary funds are provided, to adopt for a limited period of time an accelerated curriculum such as we conducted during World War II. Under this program an extra class can be graduated each three years. However, neither the state nor the federal government has provided the funds to cover the additional costs of such a program, so nothing further has been done about it.

A major change in the curriculum of our Medical School was made several years ago when premedical requirements were modified to provide a broader and more liberal general education and the medical course proper was extended to include in the school year for freshmen, sophomore and junior students, the first six weeks of the usual summer vacation. At the same time, the number of hours of formal instruction in several departments were reduced. This change was made to permit the incorporation of certain new materials in the medical curriculum and to give the students more time for study and independent reading and work.

A further though relatively minor change in the curriculum was made effective this year. This provides for the elimination of all lectures and formal classes for junior students except during the first hour in the morning, that is 8 to 9 o'clock. Under this program the students will devote the entire day, except for this hour, to clerkship work and to the conferences, reading and studying pertinent thereto. Our alumni will recognize this as quite a change from the days that we spent taking notes in lecture halls from morning to night throughout the junior year. The current plan places upon the student a much greater responsibility for his own education and requires a much larger teaching staff for intimate supervision and clinical instruction, but we are convinced that the results are far better than those obtained under the old system.

Graduate Medical Education

In addition to undergraduate medical teaching our medical school carries a major program of graduate medical education. This includes advanced training both in the basic medical sciences and the various clinical specialties. During the past year more than 500 graduate students devoted full time to these various programs. This number together with the approximately 500 fellows in the Mayo Foundation of our Graduate School means that the University of Minnesota has the largest graduate training program in medicine of any university in this country—that means of any university in the world.

The clinical training of these graduate students is being carried on primarily at the University Hospitals, the Minneapolis General Hospital, the Minneapolis Veterans' Hospital and Ancker Hospital of Saint Paul, all excellent teaching hospitals. In addition affiliations for graduate training have been operating at Miller Hospital, Saint Joseph's Hospital, the Children's Hospital and Gillette Hospital in Saint Paul and with Northwestern Hospital, Saint Barnabas Hospital, the Shrine Hospital, the Kenny Institute and Glen Lake Sanatorium in Minneapolis.

This advanced training of carefully selected graduate students, some of whom go on to careers in medical teaching and research, is an important contribution to the forward progress of medicine in our state and nation.

Continuation Medical Education

Another activity of the Medical School which has come to gain a position of major importance is our program of Continuation Medical Education. This program was effectively pioneered by Dr. William O'Brien and has been splendidly developed during the past four years by Dr. George Aagaard. During the past year 24 courses for physicians, mostly of three days' duration, were offered at the Center for Continuation Study on the campus, and thirteen courses were arranged in various communities throughout the State. A total of 1909 physicians attended these courses. In addition, 1,621 individuals attended twenty-one similar courses offered by other divisions of the College of Medical Sciences. Altogether, these programs make an important contribution to better medical care and other health services in this area. Our big problem for the future is to find a successor who can carry forward the work of this department which Dr. O'Brien and Dr. Aagaard have so effectively developed.

The School of Nursing

The School of Nursing, like the Medical School, offers an advanced as well as basic instructional program. In fact, a major responsibility of a University School of Nursing is to prepare selected young women for positions of leadership in Nursing Education and Nursing Service.

At the University of Minnesota the basic nursing course was revised several years ago to make it possible for young women to obtain a Bachelor of Science degree in nursing in four calendar years instead of five years as previously. For the first two years of this program enrollment in the first clinical year averaged less than twenty students per class. Last fall, enrollment in the first clinical year increased to forty-seven, and this year we have seventy-two students in this class. We are encouraged by this increase because we are convinced that this program is sound, and certainly there is urgent need for more well qualified nurses. Personally, I look forward to the time when we will have more applicants than we can accept and will be selecting nursing students much as we now select medical students.

Advanced or postgraduate programs are offered in the fields of nursing education and the various clinical specialties of nursing, such as surgical nursing, operating-room nursing, psychiatric nursing, obstetrical nursing, etc. Last year approximately 150 nurses were enrolled in these various postgraduate programs. With the increase in the numbers of auxiliary nursing personnel in hospitals, the training of competent nursing supervisors and administrators becomes of increasing importance.

In the area of practical nursing, two programs have been successfully tried—one, a four-quarter program in practical nursing, and the other a six-quarter program in home management and practical nursing. The progress which these programs are making is encouraging.

In connection with nursing, I must take time to mention the heroic rescue work that Dr. Cowling did this past summer for the graduate nursing program. This program has been supported for the past five years by grants from the Kellogg Foundation. Unfortunately, the end of this support came last June when the University had no funds for new positions. Then our good friend, Dr. Cowling, went to several individuals and groups in Minneapolis, St. Paul and Duluth and obtained in excess of $20,000 to support this program during the current year. We are deeply appreciative of this support because it would have been nothing short of a calamity to discontinue this program at a time of such urgency.

One other comment about the School of Nursing: that is, that the Kellogg Foundation has just given the University a 5-year grant totaling approximately $100,000 to develop a program in Nursing Service Administration. This grant is further evidence of the high regard in which our School of Nursing is held by people whose business it is to know the fields of Nursing Education and Nursing Service.

School of Public Health

Our School of Public Health is truly an international settlement. Of its 250 full-time students, little less than half are from the State of Minnesota. The others are drawn from thirty-four other states and nineteen foreign countries. This is very clear evidence that this school has an international as well as a national reputation.

The School of Public Health offers programs of instruction and training for medical officers of health, for public health engineers, for public health nurses, for public health educators and for hospital administrators.

This youngest of our schools in the College of Medical Sciences is doing a job of which we are truly proud.

Medical Technology

Our four-year Course in Medical Technology continues to give the best of training to the fifty or sixty able young women who each year select this important field of medical service. All of the graduates of this course have multiple and attractive opportunities for employment before graduation. In fact, the demand for our graduates so far exceeds the supply that we wish we might have 25 to 30 more students per class.

Physical Therapy and Occupational Therapy

Our courses for physical therapists and for occupational therapists were inaugurated during World War II to help meet a growing national need. Both courses are four years in length and lead to a Bachelor of Science degree. Current facilities for training necessitate a limit of approximately twenty-four students per class in physical therapy and twenty-four students per class in occupational therapy. Applicants for both programs exceed the places available. However, in spite of most inadequate facilities our faculties in both of these courses are conducting splendid programs. When we get the new Mayo Memorial, the situation for these units will be materially changed, for we will devote two floors of the tower portion of this building to a physical medicine and rehabilitation center.

Medical Research

Next a few words as to research. Today, I think, everyone accepts the advancement of knowledge as a major responsibility of a true university. In the area of research the members of the faculties of our College of Medical Sciences are exceedingly active and are achieving results that are bringing distinction to our university and to our state. In spite of this, there is much misunderstanding concerning the relation of medical teaching and medical service to research.

I well remember when I was a freshman or medical student that we were amused by the information that one of our instructors had done the research for his Ph.D. degree on "The Occurrence of Conjugated Benzoic Acids in the Urine of Sand Sharks." Whether that research had any importance I still do not know, but I do know that an investigator can develop interest in and obtain scientific training and insight from studies that seem as bizarre as the research interests of our former instructor.

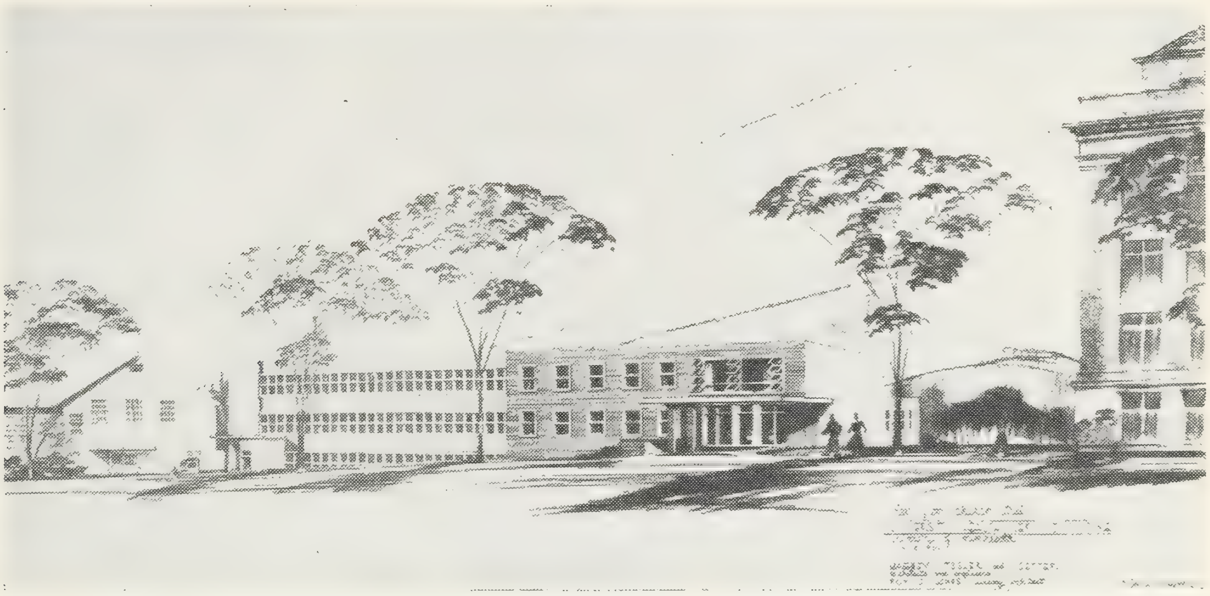

Fig. 1. Architect's drawing of the newly completed University Health Service Building.

The other day a freshman medical student said to me that he had heard from some doctor that the medical school of the University of Minnesota is a research school and that if one wants a good preparation for medical practice, he should go elsewhere. What a distressing lack of understanding such statements indicate!

Research is the spirit of inquiry put to work; and how bankrupt is a medical education that does not imbue the student with this spirit and give him a sound scientific basis upon which to keep building professionally throughout life. To learn the facts and the techniques of present-day medical diagnosis and treatment is most inadequate.

I like Charles Kettering's explanation of research. "Research," he said, "is a high-hat word that scares a lot of people. It needn't. It's rather simple. Essentially, it is nothing but a state of mind—a friendly, welcoming attitude toward change. Going out to look for change instead of waiting for it to come. Research, for practical men, is an effort to do things better and not be caught asleep at the switch. The research state of mind can apply to anything: personal affairs or any kind of business, big or little. It is the problem-solving mind as contrasted to the let-well-enough-alone mind. It is a composer-mind instead of the fiddler-mind. It is the 'tomorrow'-mind instead of the 'yesterday'-mind."

So I am proud of the research activities and achievements of the members of our faculty. I wish that time permitted me to enumerate the research programs and projects under way. They are concerned with practically every aspect of the basic sciences and of clinical medicine.

Some idea of the extent of our research activities is conveyed by the fact that last year the College of Medical Science received more than $1,250,000 from sources other than the university budget for the support of medical research. The fields of research supported by these funds are many and diverse; although our major programs of research are in the fields of cancer and cardiovascular diseases.

The sources of these funds were the Minnesota State Legislature, the Minnesota Division of the American Cancer Society, the Minnesota Society for Crippled Children and Disabled Adults, the National Institutes of Health of the U. S. Public Health Service, the U. S. Army, the U. S. Navy, the Atomic Energy Commission, the Veterans Administration, the National Research Council, the National Foundation for Infantile Paralysis, the American Cancer Society, the Allergy Foundation, the Nutrition Foundation, the Research Foundation, the Harriet Beecher Fund, other private foundations, the National Academy of Sciences, the Life Insurance Research Fund, pharmaceutical and other business corporations, finally and of very real importance, contributions by individuals.

In summary, $75,000 of the total came from the Minnesota Legislature, $862,000 from the federal government, and $384,000 from private sources. I might add that these totals do not include several endowed or privately supported research professorships, such as the George Chase Christian Professorship of Cancer-Biology, the American Legion Research Professorship in Rheumatic Fever and Heart Diseases in Children, the William A. O'Brien Professorship of the Minnesota branch of the American Cancer Society, the Pardee Cancer Research Professorship, the Mayo Professorship of Public Health. Nor do they include the capital research funds such as the Silas B. McClure bequest for half a million dollars for medical research recently received, nor the George C. Dittman bequest of approximately $400,000 for teaching and research in ophthalmology and otolaryngology. These totals also do not include the special fellowships and scholarships for selected graduate students supported from sources other than the University of Minnesota, which during the past year had a value in excess of a quarter of a million dollars.

I mention the amount of these research grants primarily to give some indication of the extent of the medical research in progress at the University of Minnesota, but the number and the amount of these grants has another implication, that is, since most of these grants were awarded by nationally chosen experts in their respective fields, the number and total of them is objective evidence of the high esteem in which the research workers and the research work at this institution are held. Meeting with these national groups from time to time I am proud and honored to represent the University of Minnesota.

Teaching and Research Facilities

Now a few words concerning our facilities. These facilities are in part on the campus and in part in affiliated hospitals, such as the Minneapolis General Hospital, the Minneapolis Veterans' Hospital, and Ancker Hospital of St. Paul. These are excellent institutions and we are exceedingly fortunate that we have them available and receive from them the splendid cooperation that exists at the present time.

On the campus we have long had a good Medical School plant and a fine University Hospital, but in recent years both of them have become very inadequate for the activities which go on in them. For a considerable number of years we have been striving to improve these facilities and I am pleased to report that finally we are getting some tangible results. During the past year two new buildings were completed and occupied. These are the Student Health Service and the Variety Club Heart Hospital.

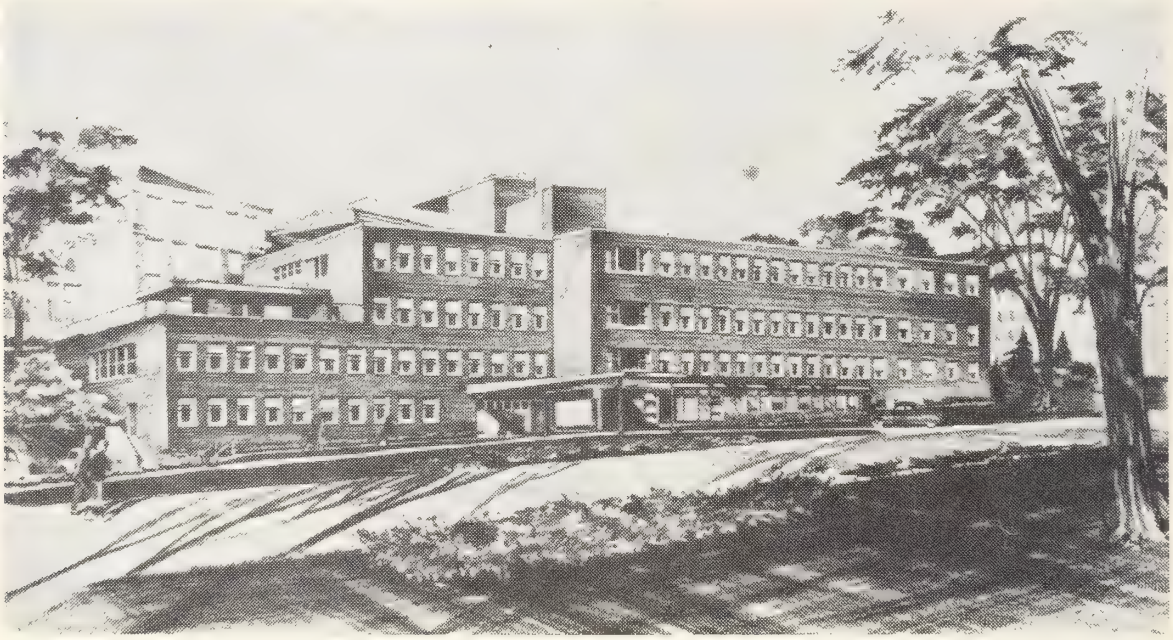

Fig. 2. Architect's drawing of the newly completed Variety Club Heart Hospital.

The Student Health Service

The Student Health Service is not administratively responsible to the College of Medical Sciences, but the Health Service and the Medical School function so intimately together that we feel that they belong to our family. The new Health Service Building (Fig. 1) is a beautiful and modern health center and out-patient clinic. Students who are bed patients will continue to be cared for on the fourth and fifth floors of the old Health Service Building. The first two floors of this same building have been available to the University Hospital and are being utilized for the extension of our out-patient clinics. The top floor of the old Health Service has been remodeled for offices, research laboratories, and labor and delivery rooms for the Department of Obstetrics.

The Variety Club Heart Hospital

This hospital, which only recently was placed in complete operation, is a splendid unit for teaching, research and for the care of patients with cardio-vascular diseases (Fig. 2). The west half of the first floor of this building is devoted to an out-patient clinic and the east half to the administrative offices, the x-ray department and research laboratories concerned with the study of congenital heart disease. The second floor contains forty beds for adult patients. The third floor is the children's unit of forty beds, while the fourth floor is devoted entirely to research laboratories. Approximately one-half of this floor is utilized for the study of infectious types of heart disease such as rheumatic fever, while the other half is utilized for the study of degenerative types of cardiovascular disease, such as coronary occlusion, arteriosclerosis, and hypertension.

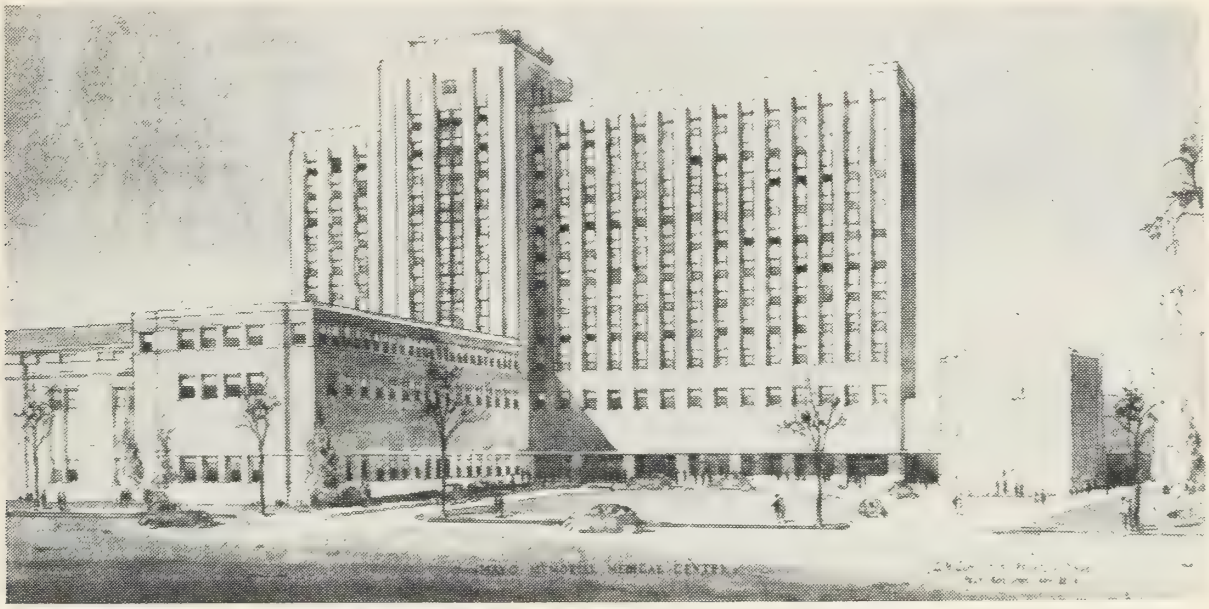

Fig. 3. Architect's drawing of the Mayo Memorial Medical Center of fourteen stories now under construction.

If there are any of you who have not seen this building, I would urge you to take time to go through it.

The Mayo Memorial

The building known as the Mayo Memorial was first proposed more than ten years ago. Its purpose was to provide improved and expanded facilities for the Medical School, the University Hospital, and other units of the College of Medical Sciences. Eighteen months ago we had twelve and a quarter million dollars and plans partially completed for a twenty-two story building for this development. Contracts for the excavation and footings and for underground services were awarded before the outbreak of hostilities in Korea and this work was completed last January. Unfortunately, the 25 per cent increase in building costs during the last six months of 1950 caused the bids for the construction of the building, received last February, to exceed by approximately three and a half million dollars the money available. Modifications in specifications, such as the substitution of a large amount of baked enamel for stainless steel, the substitution of wood windows for aluminum windows, the elimination of a great deal of tiling, et cetera, reduced the deficit to two-and-a-half-million dollars. The committee of Founders, of which Dr. Donald J. Cowling is chairman, requested a deficiency appropriation in this amount from the Legislature. And until the last evening of the legislative session, we were hopeful that this appropriation would be granted. However, as you know, the Legislature adjourned without making any appropriation for this project. That failure necessitated a major revision and curtailment of our plans.

Bids on these new plans and specifications were received about a month ago and fortunately are within available funds. The major change involved in our plans was in the reduction of the tower portion of the building from twenty-two to fourteen stories. In addition, eliminations and substitutions of less expensive materials were made wherever possible. Contracts on this building have been awarded by the Regents, and I am glad to say that work is again under way with a scheduled completion date of January, 1954.

It has been a depressing sight that I have had for the last nine months, looking out of my window into the chasm of the excavation with nothing going on. During this period, as you know, there have been various suggestions for the use of this hole, such as filling it with water, stocking it with fish and calling it "Diehl's Lake."

The perspective of the curtailed fourteen-story building is shown in Figure 3. Fortunately, the bids permit us to include the auditorium and classroom unit which is urgently needed. The auditorium will seat approximately 600 persons, and beneath the auditorium will be two classrooms which will contain something over 150 seats each. We were able also to include a two-level underground garage which will provide parking facilities for 325 cars. The finishing of the fourteenth floor of the tower which will provide offices and research laboratories for the Department of Pediatrics is not included in the construction contract. We are very hopeful, however, that we shall be able to finish this out of the contingency fund.

The eight floors eliminated from the tower were the two floors for pathology, two floors for cancer biology, one floor for biophysical research, one floor for histo-cyto-chemical research, a half floor for the School of Public Health and a half floor for offices and conference rooms for the Medical School and the department for Continuation Medical Education and a floor for the Medical-Biological Library. In fact, the library floor was the equivalent of almost two other floors in height.

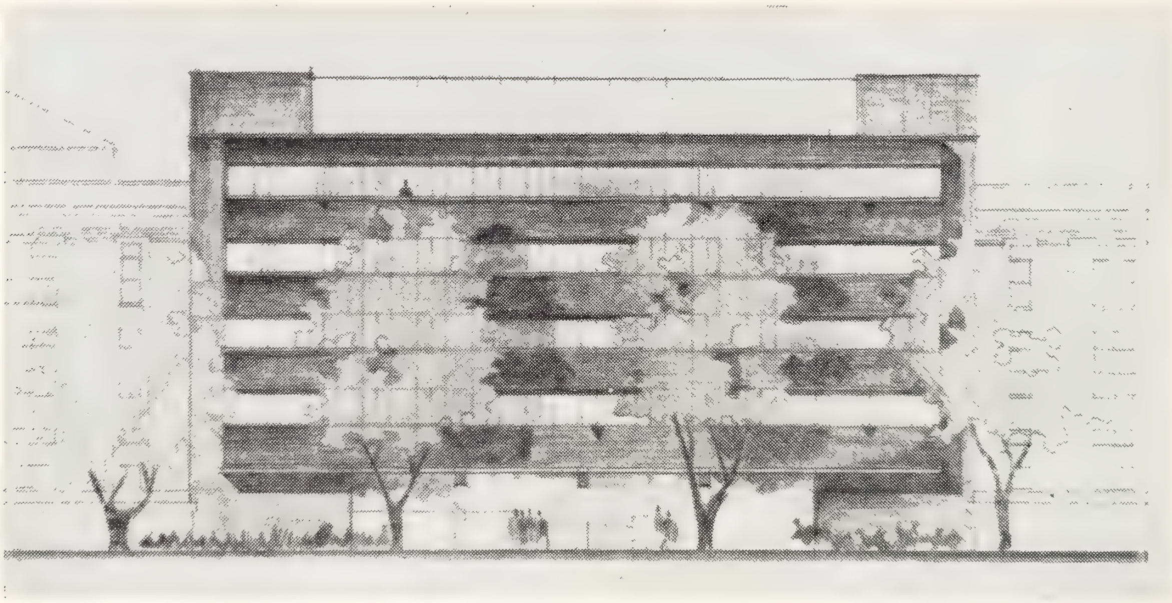

Fig. 4. Proposed building for Cancer and Heart Research to join Millard Hall and the Anatomy Building.

I regret that we shall be unable to give the Department of Pathology the new teaching and research laboratories which were planned for the new building and simultaneously return to the Department of Anatomy the Anatomy Building which it occupied exclusively from the time of its construction in 1912 until 1920. We believe, however, when this building is adequately remodeled and modernized, as proposed in the University's building program, that the Departments of Pathology and Anatomy can continue to function reasonably satisfactorily in this building.

The four floors for research—that is the two floors for cancer biology, the floor for biophysics and the floor for histo-cyto-chemistry—will be housed in a new unit to be constructed along Washington Avenue, adjoining Millard Hall and the Anatomy Building (Fig. 4). The funds for the construction of these floors in the Mayo Memorial were provided by special grants, and we were able to secure authorization to transfer these funds to this new building, the construction of which will be much less expensive than the tower would have been. The plans for this building are being prepared, and we believe that the building will be completed before the Mayo Memorial.

This program, as you doubtless have noted, leaves out completely the Medical Biological Library. Actually, before the plans for the Mayo Memorial crystalized, the faculty voted that provision for the medical-biological library on the medical campus was a top priority need for the Medical School. As it appeared then that there might be federal funds to aid public building following World War II, we had prepared plans and specifications for a medical biological library to be located in the vacant corner between the Anatomy Building and the Medical Sciences Building. Actually, this location for the library, since it will serve the College of Dentistry and the departments of zoology and botany as well as the Medical School, is in some regards preferable to the tower location.

The architectural perspective of this new building, prepared about eight years ago, is shown in Figure 5. Incidentally, this building also provides for a pathological museum, which was to have been housed in one of the floors of the department of pathology in the Mayo Memorial tower building.

As plans and specifications for this building are all completed it is our hope that it will be possible to obtain funds for its construction within the next couple of years. If this can be done it should be possible to complete this important unit not long after completion of the Mayo Memorial.

Future Plans and Problems

This completes my report for the College of Medical Sciences but, lest everyone think the picture is all rosy, I should mention some of our problems. These problems, as you doubtless have guessed, are mostly financial.

The most serious problem of all is basic support. Over the years, the Legislature has done very well by the University, but inflation and rising costs are giving rise to serious problems both as to staff salaries and to operating expenses. There frequently is not a great deal of difference budget-wise between a first-class institution and a mediocre one. And we just must improve salaries if we are to attract and retain the type of faculty which makes Minnesota the quality of institution that it is. We also must increase budgets for other operating expenses.

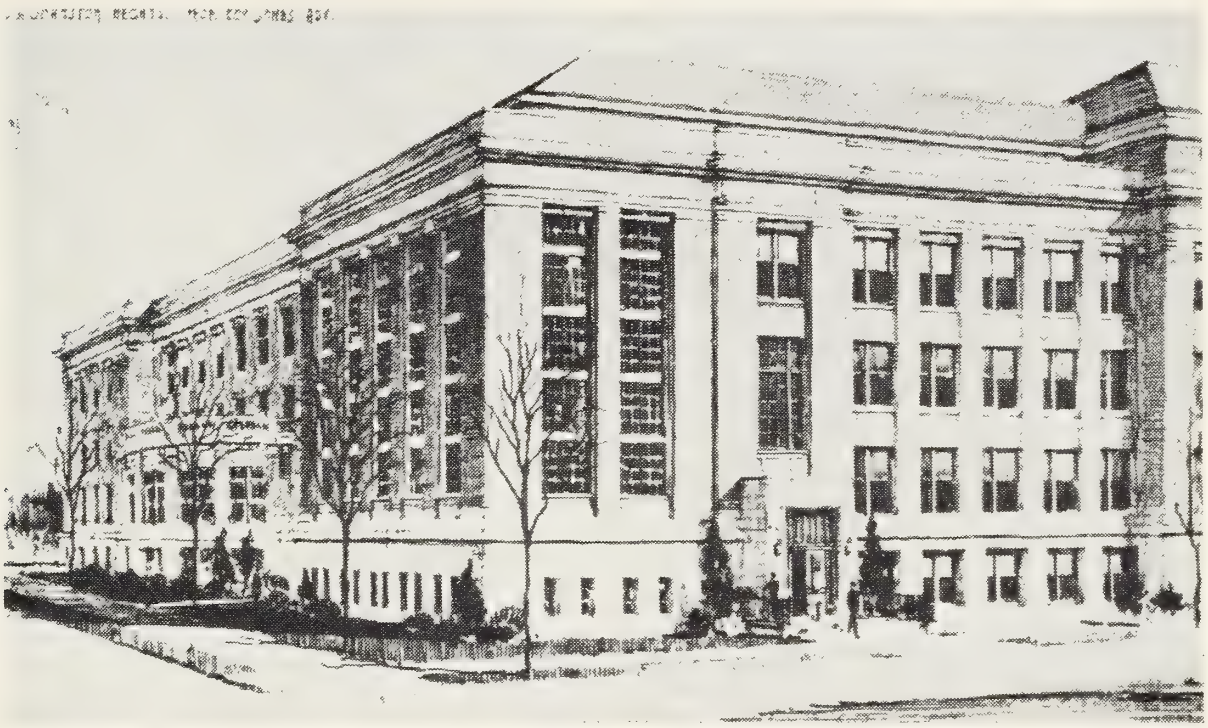

Fig. 5. Architect's drawing of the proposed Medical Biological Library.

Another problem ahead is that, in order to provide funds for the construction of the Mayo Memorial, it was necessary to reduce funds for equipment and for the remodeling of the University Hospitals way below what will be needed for effective operation of these units. It is my hope that while the Mayo Memorial is under construction, we shall be able to obtain special gifts for scientific and other types of equipment needed for this unit. The securing of funds for other than military purposes is not easy these days, but it can be done and I am sure that we can look forward with optimism to the years ahead—years which I am sure will produce achievements in which we and our University can take continuing pride and satisfaction.

PRESENTATION OF ACHIEVEMENT AWARDS

J. L. MORRILL

President, University of Minnesota

Too often there is a kind of short-circuit in communication when the stay-at-home patriot stands up to praise the front-line soldier.

The patriot is full of generous sentiments, but he fails to express them in a way that means anything to the soldier who still sees and hears the sights and sounds of battle. One writer has put it this way: To a fighting man, words like courage, glory, valor and heroism sound hollow and meaningless beside the concrete names of battlefields and towns, the numbers of regiments, roads and bridges.

This inability to say the right and proper thing troubles me in saluting those to whom we would pay tribute tonight—the alumni and staff and faculty of our College of Medical Sciences.

Engraved in your minds and memory must be countless victories in the struggle with death and disease and human disheartenment. Your triumphs are recorded in the special language of your profession: in case histories, in learned journals, technical volumes and laboratory reports. Your work becomes widely known only when you have concluded the patient work of investigation, experiment and compilation and emerge into the light of publicity with some gift of life to offer.

But what merits highest praise is the day-to-day regimen of scientific discipline which you impose upon yourselves. All this we, your patients and laymen, cannot share or really understand. We are handicapped in expressing our respect and appreciation. I can only declare the pride and gratitude which the University, the state, and the nation feel in the great work which you, and your predecessors, have accomplished and continue to accomplish.

Perhaps the reward most meaningful to a scientist is simply to give him a place to carry on his work; to place at his disposal the means and opportunity which will allow him to make his best effort. This is the kind of tribute which best reveals true understanding of what he is trying to do.

Through the years, the medical scientists of the University of Minnesota have earned many such tributes. Our medical facilities have been increasingly expanded by grants, by gifts and memorials from the State, from Federal agencies, from private organizations and from generous individuals.

The latest additions—the Mayo Memorial Medical Center and the Variety Club Heart Hospital—are clear-cut expressions of widespread faith and confidence in the University of Minnesota's community of medical men and women.

These new buildings were made possible by the contributions of many loyal partisans in the cause of human welfare. Almost every agency of a democratic society has participated in their creation. The Mayo Memorial is founded on appropriations from a generous state legislature; additional funds have come from Federal agencies—through the Hill-Burton Act, the National Cancer Institute, and the National Heart Institute of the U. S. Public Health Service; from the American and Minnesota Cancer Societies and from thousands of individual donors.

Most of you know the moving story of the Variety Club Heart Hospital at the University of Minnesota; how it was sponsored by a colorful association of showmen; how organizations and people from all walks of life joined in the work to bring it to fulfillment. The Heart Hospital is now in full operation. It is splendid with vivid colors and flooded with daylight—in harmony with the bright promise it holds for those who come there under a cloud. All of this only serves to illustrate a fact which must be a source of great pride. It is this: Minnesota Medicine has attained more than scientific stature; it has attained human stature, the goal of all your endeavor.

This faith in our College of Medical Sciences is promoted, not only by what is done here in the University Hospitals and laboratories, but through the influence and achievements of our distinguished alumni all over the world. Tonight, we honor some of them. Some are noted for their leadership in research and treatment. Some are outstanding for their work in some phase of public health.

This is a taken-for-granted term today—public health; and we tend to accept as commonplace the significance of the term. But there is nothing at all commonplace, nothing that can be taken for granted, in the idea which is implicit in the term "public health." Actually, public health is a relatively new social and humane concept. Its province is to secure a fundamental right of mankind—*the right to physical and mental well-being.* Indeed, this right is prerequisite to the full enjoyment of all of our other rights.

Rudolf Virchow, the great German pathologist of the 19th century, who was also an astute diagnostician of social ills, made the strange statement that "Medicine is a social science, and politics is nothing else than medicine on a large scale."

In these broad terms, we see the relationship of medicine to society. It is this: In pursuing its own proper ends, medicine pursues the ends of social and human welfare. Dr. Henry E. Sigerest of Johns Hopkins said the same thing more practically in recommending a public health program for adoption by all the civilized countries in the world. He advocated:

> "Education for all, including health education; the best possible working and living conditions; the best possible means of rest and recreation; a system of health institutions and medical personnel, available to all, responsible for the people's health, ready and able to advise and help them in the maintenance of health and in its restoration when prevention has broken down; centers of medical research and training."

This is the challenge confronting those who prosecute research and who strive to spread its benefits through professional service and programs of public health. Societal response to this challenge is plainly discerned in this country and in other areas of the world.

It is one of the purposes of the "Outstanding Achievement Awards" to express the University's appreciation to the alumni of the College of Medical Sciences who have been instrumental in making such progress possible.

Many of the recipients have already been honored in other places and in other ways. Their work is well known to most members of this audience.

Recognition of scientific attainment, indeed, is not so long in coming today as at one time it was. In the seventeenth century Thomas Hobbes wrote of his friend, Dr. William Harvey: "He is the only man, perhaps, that ever lived to see his own doctrine established in his lifetime." The doctrine, of course, was Harvey's new teaching on the circulation of the blood.

Times have changed. Nowadays, it is difficult to keep abreast of the medical attainments which merit praise. But we can *begin* to catch up on our own obligations, at least, this very moment. It is now my happy privilege to present the awards through which the University endeavors to acknowledge, with admiring respect and appreciation, some of its outstanding alumni in Medicine and Public Health.

In asking the first recipient to come forward, I shall read the full text of the certificate—reading thereafter simply the individual citations.

The Regents of the University of Minnesota
As a Token of High Esteem and
In Recognition of Noted Professional Attainment by

FRED L. ADAIR

Distinguished Graduate of the University of Minnesota
Emeritus Professor of Obstetrics and Gynecology of the University of Chicago
Nationally Honored for His Work in Reducing Maternal Mortality
Deem Him to be Worthy of Special Commendation for Outstanding Achievement
Conferred on October Eighth, Nineteen Hundred and Fifty-one

* * *

FRANK E. BURCH

Distinguished Graduate of the University of Minnesota
Emeritus Professor of Ophthalmology in its College of Medical Sciences
Pioneer in the Movement for the Prevention of Blindness.

* * *

EARL R. CARLSON

Distinguished Graduate of the University of Minnesota
Internationally Known Neurologist, Writer, and Lecturer
Unstinting Worker for Advancement in the Study and Treatment of Cerebral Palsy.

* * *

ALBERT J. CHESLEY

Distinguished Graduate of the University of Minnesota
Executive Officer of the Minnesota State Department of Health
Loyal Supporter of Public Health Education in the University
Elder Public Health Statesman of the Nation.

* * *

ARILD E. HANSEN

Distinguished Graduate of the University of Minnesota
Professor and Chairman of the Department of Pediatrics and
Director of the Child Health Program of the University of Texas
Nationally Respected Authority on Rheumatic Fever.

* * *

ALMA C. HAUPT

Distinguished Graduate of the University of Minnesota
Director of the Nursing Division of the Metropolitan Life Insurance Company
Eminent Contributor to the Health of a National at War and at Work.

* * *

HERMAN E. HILLEBOE

Distinguished Graduate of the University of Minnesota
Commissioner of Health, the State of New York
Outstanding Public Health Administrator
Significant Contributor to Tuberculosis Control.

PEARL L. McIVER

Distinguished Graduate of the University of Minnesota
Chief of the Division of Public Health Nursing of the United States Public Health Service
Celebrated Nurse and Pioneer in the Federal Health Services.

* * *

JAMES E. PERKINS

Distinguished Graduate of the University of Minnesota
Managing Director of the National Tuberculosis Association
Noted Epidemiologist and Administrator
Valued Adviser in International Public Health Planning.

* * *

EDITH L. POTTER

Distinguished Graduate of the University of Minnesota
Professor of Pathology of the University of Chicago
Renowned for Research in Diseases of the Newborn and for Investigation in the Rh Problem.

* * *

WILLIAM P. SHEPARD

Distinguished Graduate of the University of Minnesota
Vice President of the Metropolitan Life Insurance Company
President of the American Public Health Association
Wise Administrator, Teacher, and Leader.

* * *

ALBERT M. SNELL

Distinguished Graduate of the University of Minnesota
Senior Internist, Palo Alto Clinic, Internationally Acclaimed for His Research in Gastro-enterology
Inspiring Teacher of Internal Medicine.

* * *

EDWARD L. TUOHY

Distinguished Graduate of the University of Minnesota
Chief of Medicine of the Duluth Clinic
Steadfast Exemplar of the Highest Standards in Medical Practice
Crusader for Study and Research in Geriatrics.

* * *

Unable to be present but approved for Outstanding Achievement Awards by the Regents of the University were:

RAYMOND B. ALLEN

President, University of Washington, Seattle, Washington.

GEORGE O. BURR

Head of the Department of Physiology and Biochemistry, Experiment Station, Hawaiian Sugar Planters Association, Honolulu, Hawaii.

OLAF J. HAGEN

Physician, Fargo, North Dakota, and Former Member Board of Regents, University of Minnesota.

C. J. VAN SLYKE

Director, National Heart Institute, United States Public Health Service, Washington, D. C.

PRESENTATION OF PORTRAIT OF DEAN DIEHL

E. T. BELL, M.D.

Emeritus Professor of Pathology

This occasion is in no sense a farewell party to the Dean, but rather an occasion for rejoicing. Sixty years is not advanced age. I wish I were sixty again.

Perhaps I was chosen to make this presentation because I am one of the few among us who can remember when Harold was a boy. It may have been because I can sing his praises without fear of being accused of currying favor. My present salary cannot be adjusted up or down. I would like to believe that I was given this honor because I have known Harold and have been closely associated with him throughout his academic life.

He began his graduate career as a pathologist—a circumstance which to me indicates an early maturity of judgment. He directed the Student Health Service from 1921 until 1935, and under his leadership the Health Service gained the confidence of the students and the community.

Since 1935, he has been Dean of Medical Sciences and under his guidance our Medical School has become one of the best in our country, both in teaching and research. He believes in good teaching and he also does his best to promote research. He has welded us together as a friendly co-operative group. It is a joy to all of us to congratulate him on his long successful career.

I have said some other things about our Dean which are printed on your programs. Some of my discourse was deleted to make room for his picture which you see on the program. But after viewing this alleged likeness of the Dean, I think it would have been better to have had more remarks and less picture.

I am afraid, Mr. Morrill, that you regard this present which we are about to give you somewhat of the nature of a husband's gift of a box of cigars to his wife. We hope you will give it back to us. If you should do so, we shall hang the portrait in some appropriate place in the New Mayo Memorial Building. I should not like to put it among the Dean's bewhiskered predecessors who now adorn the Faculty Room in Millard Hall. Perhaps we shall start a new series of Super Deans who do not possess hirsute adornments.

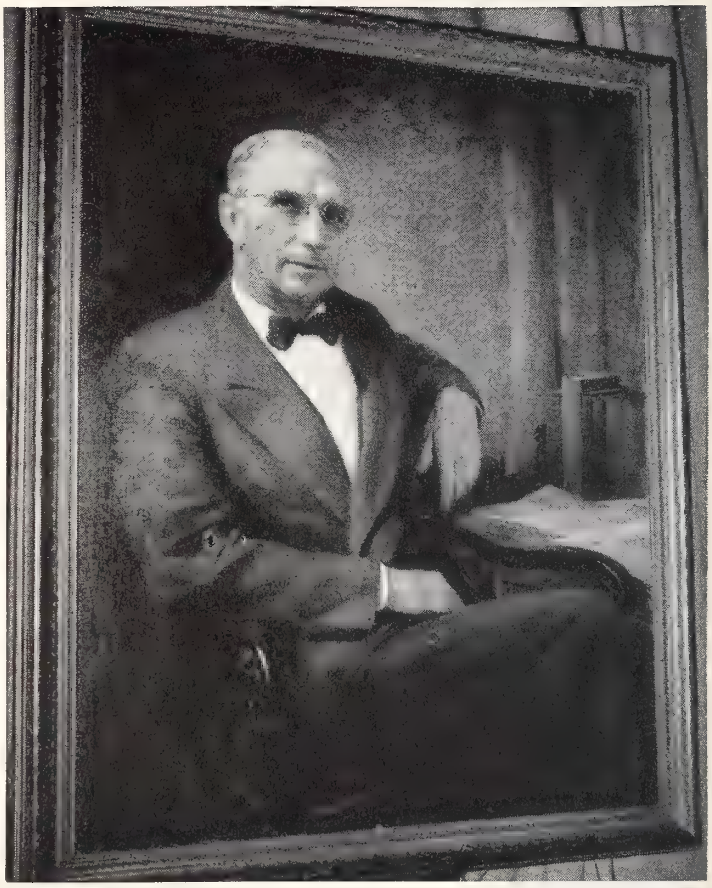

Fig. 6. Portrait of Dean Harold S. Diehl presented to the University of Minnesota by the Medical Faculty, October 8, 1951.

If any difficulty should develop about finding a proper place for the portrait, there will always be room for it in the Bell Museum. I rather favor this idea. Some people regard Pathological Exhibits as somewhat depressing, and a portrait might liven up the exhibits.

Mr. Morrill, it is now my privilege on behalf of the Medical Faculty to present to the University a portrait of Dean Diehl. It is a tribute to the best Medical Dean Minnesota has ever had, and even more importantly it is a token to Harold and Julia of our deep affection.

REMARKS IN ACCEPTANCE OF PORTRAIT

President J. L. Morrill: Dr. Bell, Dean Diehl, ladies and gentlemen, I am happy, indeed, to accept this splendid portrait in behalf of the University.

Surely, this expression of respect and regard on the part of your colleagues must be heartening and rewarding to you, Dean Diehl, and to Mrs. Diehl, as it deserves to be.

The integrity and prestige of our University, as all of us know, are the sum of the productiveness and the distinction of the individual staff members—inspired and assisted by far-sighted and energetic leadership. Dean Diehl, indeed, has brought leadership of the highest order to the College of Medical Sciences and thereby to the University of Minnesota.

On behalf of the Regents, I am delighted to receive, Dean Diehl, from your colleagues, this manifest and living memorial of your devotion and achievement.

Dean Harold S. Diehl: I am most deeply touched by the honor that you have paid me here this evening. But before speaking of that, I cannot resist telling you of an incident of which the unveiling of my portrait reminded me. This occurred in Washington at the unveiling of a marble bust of Justice Holmes, done by a famous sculptor. After the ceremonies, an attractive young woman came up to Justice Holmes and said that she had always been an admirer of his and that she had travelled all the way from California to be present at the unveiling of his bust. Justice Holmes replied that he was flattered, indeed, and that he would be glad to return the compliment at any time.

One other thought in a light vein is that it is a well-established University custom that portraits of deans are presented at the time of their retirement. This being true, if I were a person to look for ulterior motives, I might suspect that the presentation of my portrait at this time is a subtle suggestion that I might take appropriate action to conform to University custom. Actually, however, if that is the intent, you will have to be much more direct and blunt, because, like George Grim, "I Like It Here." And liking it, I hope to be around for a few more years.

Another thought, Mr. President, about this last item on the program, that is quite embarrassing to me, is that it indicates how little control I have over my faculty. We planned this meeting to make the distinguished achievement awards to our alumni, and I appointed a committee to arrange for the meeting with definite instructions as to what they were to do. The program was to end with Dr. Bell's talk, and he was to speak about the Medical School and anything else that he might wish to discuss with our distinguished guests. Then, without even consulting me, the program was changed. This, of course, is in evidence of complete disregard of administrative authority. It is a type of action that in the Navy might even be called mutiny. This, to me, is most embarrassing and may be indicative of an ominous trend. However, believing that their intentions were good and being much pleased with the end result, I shall not prefer charges against them.

Seriously though, my colleagues and friends, I am deeply appreciative of your expressions of confidence and good will, more appreciative than I can possibly put into words. With you, I am proud of the progress that our Medical School has made during my period of administration. In all honesty, however, I can take very little personal credit for this because I have had help, encouragement, and support from all sides. There was little, if anything, that I accomplished alone.

First of all, I want to acknowledge the credit that rightly belongs to Mrs. Diehl. For thirty years she has not only made a splendid home for our family but also has helped, encouraged and supported me in my work. At times, she has even needled me a bit to get things done. She has been superb, not only as a companion but also as your Dean's wife.

Also, over these years, I have had the good will, the understanding, and the support of the central university administration. President Coffman, President Ford, President Coffey and currently President Morrill, by their wise counsel, encouragement, and support, made it possible for us to move continuously forward. The same is true of Mr. Middlebrook, Mr. Willey, Mr. Lunden, and others of the central administration. It has been true also of Dean Blegen, Dr. Balfour, Dr. Victor Johnson, in connection with our graduate training program. I have had the benefit also of the interest and the support of the medical profession and of many non-medical friends throughout the state. And finally, and most important of all, I have had the constant and unfailing help, loyalty and support of the faculty and staff. With such colleagues and friends, one could not fail.

From my point of view, the sixteen years I have served as your Dean could hardly have been more pleasant and more satisfying. We have had our problems and our disappointments as well as our achievements, but the disappointments have merely served to make our achievements more gratifying and our successes more sweet.

In this life, rewards do not come in any better coin than satisfaction in one's work and the esteem and affection of one's colleagues. I frequently wonder how I was so fortunate as ever to have had the opportunities which the University of Minnesota has given me over the past thirty years.

As I said before, "I Like It Here," and I appreciate more than I can possibly express, the honor you have paid me. I assure you that in my remaining years with the University I shall spare no effort to merit the confidence and good will which you have expressed here this evening.

In conclusion, I want to express my thanks to the committee that made the plans for the portrait and for this meeting; to Mr. Nunn, who so kindly and efficiently made and carried out the arrangements for this dinner; and to my colleagues and friends who made this portrait possible. I want also to express to Mr. Edward Brewer, the artist, my congratulations on this splendid portrait and my thanks to Mrs. Brewer for her enthusiastic interest and her many helpful suggestions. I am very pleased, Mr. Brewer, that the Committee selected you as artist to do this portrait.

Finally, this has been a wonderful evening for Julia and me. We do appreciate it and thank you.

Medicine is now threatened with a philosophy, a battle if you will, which involves the very survival of our democracy, our freedom, and our way of life. The zeal of those in high places, of certain elements in industry, in labor, and in our ancillary professions to correct social inequalities by nationalizing the profession of medicine can result only in the destruction of a system of medical care which is the envy of the entire civilized world. The ultimate result can be only the production of greater injustices than existed previously and the deterioration of the quality of medical care.

Socialism and communism flourish in times of economic hardship and distress. This ideology appears as a panacea for the alleviation of temporary problems without due consideration for the long-term effects such doctrines will produce. The very essence of hope and a portent for the future lie in the revival of optimism in our reliance on the God of our fathers so beautifully expressed by that strong antagonist of atheistic communism, the Right Reverend Fulton J. Sheen, when in his Easter sermon in New York City he said, "In the providence of God, communism may be the fertilizer of a new civilization, the death that is spread over the world in the winter of its discontent to prepare the dead earth to tell its secrets in the new springtime of the spirit."—J. Stanley Kenney, M.D., Conference of Health Officers and Nurses, Lake Placid, N. Y., June 4, 1951.

Roger L. J. Kennedy, M.D.
President, Minnesota State Medical Association

President's Letter

OBJECTIVES OF THE COMING YEAR

I have often thought that the psychologic impact of the end of one year and the beginning of another, usually marking the start of new tenures for officers of groups such as the Minnesota State Medical Association, actually can create more problems than it solves.

Thus, each twelve months we have no choice but to close the books on the old year, despite the fact that some project or piece of business initiated in September or October, for example, has no logical reason for coming to an abrupt conclusion on January 1, and in fact often does not do so. Yet the tyranny of the mathematics in the calendar system requires the incoming president of the association to summon up his powers of prescience as best he can, to assay the weight and nature of coming events, and to embrace those measures which in his opinion will best serve the interests of the organization.

Such an assignment, in the face of twelve months yet to come, the import of which cannot be known by any man, is difficult indeed. There are, nonetheless, certain positive actions which can be carried out by any incoming officer, and I think they are valuable enough to be mentioned here.

First, I propose to learn as much as I can about the organizational structure of the Minnesota State Medical Association. This in itself is no simple task, for during the years we have created scientific and nonscientific committees, liaison positions and other posts or units which subserve a number of vitally useful functions, all subordinate to the business of maintaining the organization itself. It seems to me that a successful president of the association must have a thorough understanding of the duties and activities of each of the special groups I have mentioned.

Second, I shall endeavor to continue the close and cordial working relationship with the executive secretary of the association. Both the association and the public at large derive great benefits from the efficient work carried out day by day in the office of this eminently useful representative of our membership.

Third, I shall attempt to familiarize myself as extensively as possible with the twin-edged problem of ascertaining, primarily, what the health needs of the community actually are, in as many aspects as is feasible, and, next, in careful study of what methods can be used to satisfy, in equitable measure, those needs. The fact that this problem currently is being accorded, as it has been for some years, intensive study on a national scale only emphasizes the magnitude of the task, even within the confines of a state.

The fourth objective I have in mind will, in some measure, contribute to progress in solution of the problem implied in the third. That is, the planning and presentation of a scientific program which embodies the latest advances in the fields of medicine concerned, as well as current additions to knowledge in these fields, and will enable each member readily to familiarize himself with the utmost which can be done for his patient in a given case. This knowledge inevitably is reflected in better medical counsel and treatment within the community as a whole.

A factor which sometimes is forgotten is the great opportunity, within an association such as this one, for the perfecting of a sound and strong organization on the basis of the friendship and co-operative labors among the membership itself. It is a good and satisfying thing to know what ones colleague is doing, to realize that the counsel of his experience can be had at any time, and to consider that the bond of friendship within the organization actually has no limitations.

It would be a hardy man, indeed, who would maintain that all the foregoing objectives can be fulfilled within the space of a single year, but progress in the direction of any one of them would be an achievement well worth while. Without in the least wishing to expose myself to the possible charge of presumption, I nevertheless hope that the sympathy, patience and understanding of the membership, combined with the best efforts of which I am capable, will in the end provide all of us with some cause for pointing to a degree of progress in 1952.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

A MILESTONE

WITH THE ADVENT of another year we pause to look back on the year that has passed and at the same time look forward to the year 1952.

The past year saw a reversal in thinking in England manifest by the return of the Conservatives under Churchill to control of the government. Socialism has not worked for a betterment of social and economic conditions in England.

The United States has been following England down the road to Socialism. To obtain a vivid picture of the true state of affairs, those who failed to hear the addresses of Senators Taft and Byrd to the AMA House of Delegates in Los Angeles in December when they were broadcast to the nation, should read both addresses in *The Journal AMA* for December 15 (p. 1576). No stronger criticisms of the road to Socialism being taken by the present administration can be imagined than these two speeches, the one by the Democratic Senator particularly. There is a growing realization very generally that the time has come to call a halt to deficit government spending and increasing taxation, if we are to avoid collapse. That the next year will be a crucial one in the history of our country seems to be very generally recognized. The same opinion is being voiced by Vogeler, the International Telephone and Telegraph representative in Hungary, who has returned to America after seventeen months in solitary confinement in Hungary. He is spending his time warning the people of this country of the danger threatening our freedom today, not only from Russian communism but from a powerful federal government which can ignore and has ignored the Constitution.

The AMA publicity campaign which, though undertaken primarily to prevent the socialization of the practice of medicine, actually spearheaded the attack on socialism in government, was successful in preventing compulsory federal sickness insurance legislation for the time being. The fight to prevent socialization of medical practice and after that socialization of all other activities has only begun. The physicians of the country may feel proud of the part they have played so far and need not feel apologetic in their espousal of our so-called capitalistic system which assures individual freedom and initiative.

During the past years, medical schools and, in fact, most of the universities not supported by government units, have been unable to stay out of the red. To meet the distressing situation, the first thought with many has been to ask for federal aid. With a federal control of university finances, would and should go a share in the administration of the universities. This increase in the power of the federal government is just what is rightly feared. And if the federal government helps out the universities, a strong argument will be presented for federal aid to high schools, grade schools and other educational activities. The American Nurses Association at present is advocating federal aid for the training of nurses. With this policy the medical profession cannot agree.

In an effort to avoid federal subsidy of the medical schools, the American Medical Education Foundation was established by the AMA House of Delegates in December, 1950, with an appropriation of $500,000 of AMA funds. An equal appropriation was made again in December, 1951. All funds raised will be funneled to a newer and larger organization known as the National Fund for Medical Education, which accepts contributions from a wider field in the hope of obviating the need for federal assistance. It is to be hoped that the year 1952 will see the successful outcome of this important undertaking.

MINNESOTA MEDICINE

FOR A GOODLY number of years, the secretaries of the state medical associations and the editors of the state journals have met in conference at AMA headquarters each year to discuss medical affairs. The two-day sessions have served to clarify medical problems and unify thinking as to public relations and policies.

For several years a meeting of presidents and officers of state medical associations has been held in advance of the annual AMA meeting each year at which a similar program was presented. Then again, the interim AMA meetings held the past three winters have been preceded by Public Relations programs similar in character. For this and possibly other reasons, the conference of secretaries and editors has been dispensed with.

In view of the fact that most of the state editors did not attend the meeting of presidents and officers of state conventions and feeling that a periodic get-together of editors is highly desirable, the AMA Trustees, at the instigation of the Advisory Committee of the State Journal Advertising Bureau, arranged for a meeting of editors alone in Chicago on November 12 and 13 last. It is the present plan to hold this meeting in Chicago biennially.

The many facets pertaining to the publication of a state medical journal received discussion. Being a professional journal its value depends largely on the content of scientific material. According to a survey reported at the meeting, clinicopathological conferences and case reports are most popular with the readers. Original articles, so-called, come next. These two departments comprise the backbone of the state journal and their quality determines the standing of the journal. It is difficult to determine how many subscribers read the editorials. That they are not read more often is doubtless the fault of the editors. That they are read to some extent becomes obvious when an opinion is expressed on some controversial subject. Editorials, however, should express opinions of the editor, rather than simply recite facts, as so many do. It is generally conceded that editors of medical journals should feel at liberty to express opinions on government policies but should refrain from taking side in partisan politics. Editors recognize that they cannot always be right and welcome attention being called to their mistakes or the expression of contrary opinions in "communications to the editor."

There is one department in a state journal which is distinctive—the personal or general interest column. All readers have an interest in what their friends and neighbors are doing. While the newsy quality of this department suffers from a necessary delay of some weeks in appearance in print, we urge county secretaries and, in fact, all our readers to submit news items about themselves or acquaintances.

We desire more original articles, so-called, and more case reports. Minnesota Medicine affords an outlet for the 3,000 or more members of the State Association to present their ideas and experiences to their fellow physicians. Submitted articles should be brief and free from superfluous wordage. Articles on clinical phases of medicine are particularly desired. For a variety of reasons, we have been receiving fewer papers for publication and would appreciate the cooperation of members in this regard.

As we enter 1952, we wish our readers a very Happy New Year and again pledge our cooperation to the officers and membership of the Association. At the same time, we request the cooperation of the membership in making Minnesota Medicine bigger and better in every way.

NEW LAW REGARDING PRESCRIPTIONS

THE NEW LAW regarding the refilling of prescriptions under the Durham-Humphrey bill passed recently by Congress is sensible and a step in the right direction. It becomes effective April 26, 1952—six months from passage.

According to the new law, drug manufacturers will be required to label a drug as dangerous, which, "because of its toxicity or other potentiality for harmful effect or the method of its use, or the collateral measures necessary to its use, is not safe for use except under the supervision of a practitioner licensed by law to administer such drug," with the label "Caution—Federal Law prohibits dispensing without prescription." The druggist will require a prescription, written or given over the telephone, for the dispensing of a drug so labeled. The druggist must keep a file of telephoned prescriptions and check them back with the prescriber to be sure of his identity.

The definition of drugs limited to prescription, as interpreted by the Food and Drug Administration, includes among others: penicillin, barbiturates, benzedrine, dexedrine, sulfa drugs, antibiotics, thyroid and male and female sex hormones.

This clarifies the drugs requiring prescriptions, as far as the druggist is concerned. He can fill or refill others over the counter without prescription. This simplifies the prompt procurement of medicine that requires a prescription which ofttimes was impossible formerly without breaking the letter of the law.

AMA PRESIDENT'S SCHEDULE

FOLLOWING is a three weeks' schedule of John W. Cline, M.D., president of the AMA, lifted from the November issue of the *Pennsylvania Medical Journal.*

September 9—Left San Francisco 7:45 a.m., and arrived in New York 8:55 p.m.

September 10—Left New York for New Haven.

September 11—Visited Yale Medical School followed by cocktail party and dinner at New Haven Lawn Club, speaking on "Problems Facing American Medicine in the Immediate Future." Returned to New York from New Haven.

September 12—Left New York 7:00 a.m., arriving in San Francisco 3:30 p.m.

September 13—Left San Francisco 8:55 a.m., and arrived in Reno, Nevada, 10:35 a.m. Presented two scientific discussions on surgical subjects at Nevada State Medical Society convention.

September 14—Spoke at Nevada Medical Society's annual dinner.

September 15—Left Reno 1:05 p.m., arriving in Los Angeles 4:35 p.m.

September 16—Left Los Angeles 2:25 p.m., arriving in St. Louis 10:30 p.m.

September 17—Attended convention of American Hospital Association; present at luncheon and spoke at dinner meeting.

We venture the opinion that this man-killing pace of flitting about the country, if maintained for the entire year of AMA presidency, will leave any man a physical and nervous wreck. Somewhere a brake should be placed on the demands made on our president.

Nowadays the AMA president is called upon to sacrifice his practice and convenience in the interest of unifying the national association and furthering public relations. Our presidents should know that their sacrifice for the good of medicine is appreciated.

KREBIOZEN

THE COMMITTEE ON RESEARCH of the Council on Pharmacy and Chemistry of the AMA on October 26, 1951, after a survey of 100 case histories of patients treated with Krebiozen, a secret cancer remedy alleged to have been discovered three years ago by Dr. Stevan Durovic, a former Yugoslavian physician, reported failure to confirm the beneficial effects claimed last March by Dr. Andrew C. Ivy, Chicago physiologist and vice president in charge of the professional schools of the University of Illinois. The drug, described as a white powder soluble in water, is alleged to have been extracted from horse serum after the horses had been inoculated with an undisclosed substance. We are not informed whether this substance was undisclosed to Dr. Ivy and he administered a therapeutic agent the nature of which was unknown to him or whether he shared with the Yugoslavian physician in keeping the nature of the remedy undisclosed.

Had there not been an established agency to pass unbiased judgment on the efficacy of this alleged cancer drug, there is no telling to what lengths Krebiozen, with its presumably reliable backing, might have been used.

DOCTORS KENDALL AND HENCH HONORED

AT A DINNER meeting held at the Coffman Memorial Union ballroom, November 29, 1951, citations by the Regents of the University of Minnesota were presented to the two members of the faculty of the postgraduate medical school, Dr. Edward C. Kendall and Dr. Philip S. Hench.

As is well known, the biochemist Dr. Kendall and the internist Dr. Hench, both of the Mayo Foundation, along with Dr. Tadeus Reichstein of Switzerland, were presented with the Nobel Prize at Stockholm on December 10, 1950.

Dr. Kendall was born in 1886 at South Norwalk, Connecticut. From Columbia University he received the degree of B.S. in 1908, M.S. in 1909 and Ph.D. in 1910. In 1914, he entered the Mayo Clinic as head of the Division of Biochemistry, which position he held until his retirement in 1951. He was already well known for his isolation of thyroxin and has received numerous prizes for his scientific contributions. These include the John Scott Prize and Premium by the city of Philadelphia in 1921; the Chandler Medal from Columbia University in 1925; and the Squibb Award for 1945 for outstanding research in endocrinology.

He has served as president of the American Society of Biochemical Chemists and of the Association for the Study of Internal Secretions. He has been awarded the honorary Doctor of Science degree from Yale University, Western Reserve University, Williams College, the National University of Ireland and Columbia University.

In 1940, Drs. Kendall and Hench shared the Albert D. Lasker Award given by the American Public Health Association and in 1950 the Passano Award for the development of Compound E (Cortisone).

In 1950, Dr. Kendall was presented with the John Phillips Memorial Medal of the American College of Physicians, the award of the American Pharmaceutical Manufacturers' Association and the annual award of the Research Corporation of New York City.

In 1951, the two Mayo scientists were presented with the Award of Merit from the Masonic Foundation for Medical Research and Human Welfare and the

$10,000 Dr. C. C. Criss Award of the Mutual Benefit Health and Accident Association of Omaha, Nebraska.

Dr. Hench was born in Pittsburgh in 1896. He received his B.A. degree from Lafayette College in 1916 and his M.D. from the University of Pittsburgh in 1920. After a year's internship at St. Francis Hospital in Pittsburgh he became a fellow in medicine at the Mayo Foundation. In 1931, he received the degree of Master of Science in internal medicine from the University of Minnesota and became a full professor of medicine in the Rochester branch of the University of Minnesota postgraduate school of medicine in 1947. Part of his service in the army in World War II was spent as chief of the Medical Service and director of the Army's Rheumatism Center, Army and Navy General Hospital. He was promoted in 1945 to the rank of colonel.

Dr. Hench has received the honorary Doctor of Science degree from Lafayette College, Washington and Jefferson College, Western Reserve University, the National University of Ireland and the University of Pittsburgh.

One of the founders of the American Rheumatism Association, he was its president in 1940-41 and has been chief editor of the Association's annual *Rheumatism Reviews.* He is also chairman of the American Committee of the Ligue Internationale Contre le Rheumatisme and chairman of the Arthritis and Rheumatism Study Section of the National Institute of Health, United States Public Health Service.

Dr. Hench has a long list of honorary memberships in outstanding American and international scientific and medical societies. Besides sharing with Dr. Kendall the awards mentioned, he received the Scientific Award of the American Pharmaceutical Manufacturers Association and the special citation of the American Rheumatism Association.

The dinner meeting held at the Coffman Memorial Union in honor of Dr. Kendall and Dr. Hench was presided over by Dr. Theodore C. Blegen, Dean of the University of Minnesota Graduate School. The evening's program was initiated by the showing of a movie recording the presentation of the Nobel prize to the two Minnesota professors at Stockholm last December. Participants in the Symposium on Rheumatism held at the University under the cosponsorship of the University and the Minnesota Heart Association, who were present, were next introduced. After the introduction of guests at the head table, an address on the University and Medical Research was given by Dr. Owen H. Wangensteen, head of the Department of Surgery at the University.

Dr. James L. Morrill, President of the University, on behalf of the Regents of the University, presented the special Regents' Citation as follows:

EDWIN CALVIN KENDALL

Distinguished chemist and physiologist, for thirty-seven years leader in biochemistry in the Mayo Foundation of the Graduate School of the University of Minnesota, successful investigator of hormones and metabolism, exponent of the creed of co-operation between laboratory and clinic, devotee to the thesis that progress in basic research is the key to improvement in human welfare—because your brilliant mind and tireless energy have brought surcease from pain and new hope to suffering men and have opened vistas into the unknown in knowledge; and because your career of scientific research exemplifies the ideal in the consummation of practical achievement through intellectual endeavor; the Board of Regents of the University of Minnesota, upon recommendation of its faculties, this twenty-ninth day of November, nineteen hundred and fifty-one, confers upon you, Edward Calvin Kendall, a Special Citation for Distinguished Service.

PHILIP SHOWALTER HENCH

Distinguished alumnus of the University of Minnesota, keen observer of disease-states, example of the ideal physician who combines the application of the available tools of science with the diagnostic skill and therapeutic yearning of the healer of the sick, exponent of teamwork in the investigation and practice of medicine—because your brilliant observations and tireless persistence in the study of rheumatic diseases have culminated in the discovery of new and successful methods of their treatment and of new knowledge as to the mechanism of their occurrence; and because your career as physician and clinical investigator exemplifies the ideal to which others may look for inspiration; the Board of Regents of the University of Minnesota, upon recommendation of its faculties, this twenty-ninth day of November, nineteen hundred and fifty-one, confers upon you, Philip Showalter Hench, a Special Citation for Distinguished Service.

After the citations had been presented, the recipients responded, each with a touch of humor which was delightful.

American medicine is spearheading the fight against those who would lead us into socialism and the welfare state. We all have a great task to further, jointly, our efforts to maintain a free America. We are on the threshold of the greatest progress, perhaps in all history, in the relief of human suffering and the prolongation of human life. The wonder drugs, the developments in the fields of hormone and steroid therapy, modern surgical miracles, all presage a great era of sound health for our people. The hidden workings of the human mind are being revealed. And all this has, in the past, and can, in the future, be effected only if we maintain that spirit which flourishes only under our system of free and unfettered medicine. American doctors accept their obligations to the welfare of our free society, and with God's help will continue to uphold those ideals which have made this nation the hope of freedom-loving people everywhere.—J. STANLEY KENNEY, M.D., Conference of Health Officers and Nurses, Lake Placid, N. Y., June 4, 1951.

AN EDITOR VIEWS MEDICINE

EDWIN F. ABELS
Publisher, The Lawrence (Kansas) Outlook;
Past President, National Editorial Association

WHEN 65,000 individuals and business firms joined with the medical profession in buying advertising space in newspapers of America to advertise the fact that they were in accord with your campaign for freedom, my fellow publishers from one end of this great nation to the other took new courage. Here was unexpected support for the bulwark of Democracy, the non-metropolitan press of America, that has stood against the attacks on our freedoms. I speak of the non-metropolitan press that reaches more than 52 per cent of the people of this nation. Those newspapers that help elect 67 per cent of the U. S. Senators and 69 per cent of the U. S. Congressmen. I refer specifically to the papers printed and circulated in towns of less than 10,000 population and the rural trade areas.

It is literally true that groups of our editors met and talked about this phenomenon of an advertising campaign sparked by the medical profession. There is a logical reason for that surprise. Doctors are highly trained, scientific men. Colleges rightfully place great emphasis on thorough technical training. But some of your schools have entirely neglected a very important subject—that of public relations. Many an editor never hears from the doctor in his town except when the doctor's wife has a bridge party or when the banker's wife has a baby and "Doc" thinks he needs to be mentioned as having helped a bit. Let the editor suggest that "Doc" put his name in a small square on the Elks picnic program and the oath of Hippocrates gets a few modern oaths hooked on to it before the editor gets back to his office.

It has been said before, and I only repeat it, freedom in this nation is being poisoned. It is sick unto death. The editors of the papers I represent have known this fact and have been concerned about it. It never occurred to them to call in the doctor to help cure this case of poisoning. Foolishly, they kept calling on the politicians, some of the very men who were mixing the libation. What a thrill it was when you men walked in, unannounced, and told the world to count you on the side of freedom, liberty, private initiative and all of the privileges and opportunities that have contributed to the greatness of this nation. Yet it was the natural thing for you to do. History tells us that yours is a profession built by men of courage, vision and great intellect.

A History of Courageous Action

Let's check that very briefly by going back to the origin of true medicine as we know it today—back to that early Greek civilization from whence came some of the greatest thinkers of all times. Starting with nothing except their five senses and keen interpretative faculties they pooled their experiences to form the very beginnings of modern medicine. The sick gathered in the Temple seeking help. It was there that the first hygienic principles were developed and the importance of baths and diet were discovered. In 460 B.C., Hippocrates, the greatest of all the scholars, the philosopher, the son and grandson of physicians, upset many old traditions and dared to follow his own conclusions; an example of courage that has been emulated many, many times through the centuries.

Let's go over into Egypt for another great demonstration of courage. This time it was Ptolomy who made the noteworthy contribution. His dissections of the human body were the basis for the advancement of anatomy and physiology.

Next, to the Roman Empire in 130 A.D. to pay tribute to Galen, the greatest of the Roman doctors. One of his biographers says that he influenced the medical profession for 13 centuries. In my opinion his influence is still being felt, for he was the first to charge a fee of $2,000.

Let's skip the Dark Ages—the time from about 200 A.D. to the beginning of the 15th century. Skip them because the signs today are pointing unmistakably to a crackup of the fundamental principles upon which this nation is founded. Let's admit our political mistakes and help search for a solution, for there is work for every courageous group, every thinking individual. I want to give you a little true story to show that brave men are constantly being trained in your profession. We have in our town the University of Kansas with one of the nation's outstanding schools of Medicine. According to the story, one of the medical students had acquired a reputation for being an exceptionally brave young man. He even admitted that he had an abundance of that particular virtue. His classmates became a bit bored with his bragging. An opportunity to test his courage came when he was being initiated into one of the medical fraternities. The event was planned carefully. It was nearly midnight when he was taken to a deserted farm house where he was led into an empty room back by the flickering gleam of an uncertain flashlight. On a rudely constructed bench of boards placed across a couple of logs was a cadaver. The brave young man was given a lighted candle and told to keep watch. He did not know that his silent companion on the boards had left this vale of tears while sitting in a chair and was now in a prone position only because he was tied down. The initiate sat quietly in his chamber of reflection listening intently as his companions started their car and drove away. All was quiet except for the ticking of his wrist watch and the sound of the Kansas wind as it whistled eerily about the place. Suddenly there was a crash. A large stone

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Address made before the Conference of Presidents and other officers of State Medical Associations, Atlantic City, New Jersey, June 10, 1951.

came through the window and bounced noisily across the floor. The young medic scarcely moved. Only the candle flickered a bit in the breeze. Next a huge black cat came bounding in through the broken window and the cadaver suddenly raised to a sitting position. The student spoke a bit sternly as he said, "Lay down, you damn fool, I'll put the cat out."

Gentlemen, we recognize in you the courage that is necessary to assist in regaining and preserving our freedoms. You have made a start. Let's not just sit there like the cadaver and wait for someone else to put out the cat. You are teamed with the power of the published word and paired with men who are alert to the growing threat. Chaucer, in his writings many years ago said, "The lyf so short, the craft so long to lerne." Each of us has been busy learning our business and life is so short that we must act now if we are to be effective.

What America needs today, what your profession and my business needs, more than any other one thing that I can call to mind, is men of courage to speak out fearlessly and courageously for what they know to be right. You did it in your advertising campaign and you inspired thousands of others to follow your example. By that campaign you won new prestige. Brave men must hold high the torch of liberty.

Our Duty as Citizens

Our American system of government is based on the right of the individual under the law. It is based upon the tenets of Christianity, the Ten Commandments, the Sermon on the Mount, the Golden rule—aye, on the very principles enunciated by Hippocrates a half century before the birth of Christ. Our system of government is based on reason and common sense and the dignity of man. Our churches are crowded with those who say they believe in the principles of Christianity. Our stores and our places of business are staffed with the folk who fill the pews on Sunday. Yet we are faced with the threat of state control, Socialism, Communism. Everything that is the exact opposite of what we profess to believe. Possibly the old blanket story still holds true.

Out on the plains of our great middle west this old story has long been a favorite. The proprietor at the crossroads store was a pious gentleman. He had numerous verses of scripture tacked up all over the place. He made it a rule that every time he made a sale he would quote a verse of scripture as he punched the buttons on the cash register to ring up a sale. One day a cattleman came in and asked for a saddle blanket. He had just bought a fine horse and a wonderful saddle. He told the storekeeper he wanted a blanket that would fit his new purchases, the best was none too good. The old merchant reached to the top of the pile and pulled off a blanket for $3.95. That wasn't nearly good enough. He reached into the middle of the same pile and pulled out one for $14.75. It, too, was not good enough. The third one, which was pulled from the bottom of the $3.95 pile, was priced at $32.25 and the cattleman bought. The old loafers grouped about the stove leaned forward to hear the verse of scripture when the old merchant rang up the sale. Here is what they heard—"He was a stranger and I took him in."

The pressure under which we are working has kept us so busy that we have become strangers to what is happening in Washington, in our state capitals and even in our local units of government. Like the man who bought the blanket, we are being taken in. So rotten and corrupt has our government become on the national level that it was necessary to fire a five star general in order to divert the minds of the people from the graft and corruption that had been exposed by a congressional committee. A part of that expose of gambling and immorality can be traced back to your town and to my town, for how could there be a national crime syndicate, or gambling syndicate, without local outlets throughout the nation?

I mention this to emphasize the fact that we have not been alert to our duty as citizens. We have calmly accepted the type of government the politicians have wanted us to have, not the kind of government we have a right to demand. As a result of our reticence to speak out bravely for what we know to be right, every freedom we hold most dear is at stake. If you will pardon a couple of personal experiences I want to illustrate what I mean. Back in 1938 I published a story in my newspaper about a certain ultra liberal preacher in my town. I called him a Communist and, as a result, I had a $20,000 libel suit on my hands. In spite of the fact that he had said in my office that he was a member of the Communist party, I was forced to get evidence to prove my assertion. How I got that evidence and the fact that the case never went to trial is interesting but not important here. I want you to know that within the past six months that same preacher was called before the courts of Ohio in a loyalty hearing. That hearing was necessary because he was at the head of one of the largest airports in the state of Ohio adjacent to one of the large industrial districts. It took thirteen years for the Government to get interested in this case.

The other incident I want to mention is that within the past four weeks a friend of mine returned from 24 years of missionary work in China. I wanted a story for my paper. I did not get it but I did get information from him that has made me realize that we, the people, have lost far more of our freedom than we dare admit. The reason I did not get this man's story was because he feared for the life of his friends who are still in China. He saw it happen before he got out of the country. He knew that one little story in a weekly paper just about as far away from China as it is possible to get, telling of the oppression under Communist rule would find its way back to that country in a matter of only a few days and the purge would follow.

I bring these two stories to you to emphasize the fact that we can no longer hide behind the excuse that we are too busy in our business or professions to be interested in politics. In 1938 a man boasted that he was a Communist, proud of it, and that this Government would be overthrown either by or through their work among the youth of America. Thirteen years later, Government authorities started checking on him. A loyal, Christian, American citizen dares not speak because his story would bring death to friends on the other side of the world within a fortnight. How near are we to losing our freedoms when our enemy already has this much power?

The Role of National Groups

Hundreds of our newspapers are not yet alert to the menace of Socialized medicine and other Socialistic-Communistic activities. Hundreds of your members will not speak out in defense of the freedoms they have used to such glorious and beneficial advantage. The same is true in almost every line of business and professional endeavor. Our people must be alert to the threat that is so close upon us and must do something about it. Your organization has made a start.

I am proud of the fact that just about a year ago the members of the National Editorial Association, as part of their annual convention held at Providence, Rhode Island, made a pilgrimage to Plymouth Rock for a rededication service. Representing some 5,500 non-metropolitan newspapers in all parts of the nation, they dedicated the services of those publishers to the principles and ideals upon which this nation was founded. They consecrated themselves anew to the fundamental freedoms of our nation.

It was not just by accident that you found willing hands to help carry your message to the American people. There is a reason why papers with less than 3,000 circulation carried 75 per cent of the tie-in advertising. These are the small town newspapers that are close to the lives and hearts of the people they serve. These same newspapers, today, in many states are leading the campaigns to make hospital facilities available for the young doctors they hope to bring into their communities. These are the newspapers that are actively concerned with government. These are the papers that publish the death notices of those brave boys who are dying on the battlefields in Korea in a war that cannot be won—where the emphasis is only on how many of the enemy can be killed. These are the papers in which the sympathy of the community is extended to the parents. Your representatives, Whitaker and Baxter, made a careful study of the field before they chose so wisely the media to be used in placing your message before the people of America. They concentrated on the group that has ever carried the torch in the fight for freedom's preservation, the vast majority of them placing service to their community and nation ahead of the dollars that might be lured into the cash registers.

Your friends, the publishers, have not stopped in their fight for better government. It is a never ending fight. In our Spring Convention held in New York City in April of this year the National Editorial Association, after the excellent address given by Dr. Louis H. Bauer, chairman of your board of trustees, passed the following resolution:

> "Whereas we believe that an outstanding contribution, during the past year, to the cause of individual freedom and the maintenance of our American way of life has been the Nation-wide campaign by the American medical profession in behalf of freedom for both physicians and the cause of political freedom,
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> "Therefore, Be It Resolved that we do publicly commend the doctors of our country for their enlightened contribution to the American way of life; and do recognize this public service so ably performed by the American Medical Association, its Officers, its Board of Trustees, its Campaign Committee, and to Clem Whitaker and Leone Baxter, who directed the National Education Campaign of the American Medical Association."

The resolution was passed without a dissenting vote. Today, it is my honor and privilege to bring you greetings from our membership and to compliment you for your firm stand against the socialization of your profession. It is our sincere hope that other national organizations will follow the example set by the great American Medical Association and arouse their membership to the peril that is upon us. The philosophy of our enemies is to divide and conquer. They expect to take us one group at a time. It is the duty and most important function of every national association, whether it be lumber dealers, hardware merchants, men in the various fields of transportation, men in the professions, newspaper publishers, doctors or any and every other type of national organization, to make every effort to block any and all government encroachment on business. We must stand together as a unit when our liberties and freedoms are at stake. This was one of the main themes in the National Editorial Association convention held at Seattle just a few days ago and it has been stressed in practically every meeting of the association during the past decade.

The Spirit That is America

The spirit that is America, and the spirit we must preserve at all cost, is typified by this true story from my native state, Kansas. I would be remiss in my obligation as a citizen if I did not give at least one illustration of the thrilling leadership the medical profession has in Dr. Franklin D. Murphy, dean of the University of Kansas School of Medicine—leadership that helps men to help themselves, thereby gaining strength of character and unity of purpose. Under the date line of April 29 the people of my state were given the story of the opening of the $30,000 hospital in Bird City, a community of 536 people in the high plains country in the northwest part of the state. For 10 years the people in that small community tried to get a doctor. Dean Murphy's rural health plan, that has had national recognition, was the means of solving their problem. The people of Bird City built their hospital by contributions of cash and labor. More than 100 families gave something. It took them four years to get the job done but they now have a modern building, fully equipped; it has a nursery, a surgery room, an X-ray room, rooms for the patients, a kitchen, reception room and all the rest. It's all paid for, it's tax free, for the use of all the people of that little community. Best of all, it has been leased for $1 per year to Dr. D. Dan Ferguson, a 27-year-old graduate of the University School of Medicine who has been practicing there for almost a year. This story has been repeated a score of times in Kansas under the inspiration and guidance of Dean Murphy. In the same manner and with the same spirit that our pioneer forefathers conquered the prairies and forces of nature to lay the foundation for a great state, so Dr. Murphy is today's personification of the Spirit that is America.

For a direct antithesis let's go to the May 7 issue of the *Saturday Evening Post* (the issue will be found in the waiting rooms of many doctors about a year from now) to the article written by Dr. Ernest M. Pippa, "I Was A Surgeon For The Chinese Reds," in which he quotes a leading Communist as saying: "We have dispensed with the sloppy humanitarian viewpoint that wastes valuable time and material on useless dregs of humanity merely because they are sick. We have only one interest and one duty: to keep fit those who are of value to our communist state. These are the ones who will get our attention and our best care. We are not interested in the people of China as they are now. They must die anyway before we can build a new China. To help them to prolong their lives by adequate medical care would not only be a waste but it would retard progress."

There you have the communist way in contrast to what we have enjoyed in this nation. It is true that socialized medicine alone is not communism as it is practiced in China, but we must recognize that it is a big step in that direction. Look what those who advocate socialized medicine did with the dignity of the ordinary bank loan when they launched the RFC.

I will admit readily that this illustration is a bit extreme but when we start down a road it is well to know beforehand just what is at the other end. We have had far too much loose thinking and social planning in this nation. Not knowing all of the facts gets us into trouble quickly. The favorite story of a former chancellor of our University concerned a student who objected to the requirement that he learn to swim. He said he had no time for it and said he could learn to swim by reading about it in a book and studying the pictures. The idea caught the fancy of the swimming instructor who consented to the student's demands and told him to report at the end of the semester ready to swim three times the length of the pool as a test of his knowledge. Two or three evenings before the time for the test the student practiced the various strokes as illustrated in his book by lying on the piano bench, kicking and going through the necessary motions. When the time came for the test he plunged bravely into the deep end of the pool and sank to the bottom. The second time he came sputtering to the surface they yanked him out of the water. When he regained his voice he said that he had committed to memory every necessary detail on how to swim and he would have been successful, too, except he didn't know about the looseness of the water. We have far too many persons who do not know about the looseness of the thinking in political circles.

Our Common Cause

Members of the conference, I ask your pardon for not having properly emphasized the many accomplishments of your great profession. Many of the cures that are now considered routine by you in your everyday work border closely on the miraculous. Never in all of recorded history has the healing art advanced so rapidly by scientific research that has been so basically sound. Much of that advancement has been due to your closely knit organization and exchange of ideas and experiences. Through your efforts during the past 50 years you have given us 20 extra years of life and it didn't just happen by accident. My grandson who was born three months ago can look forward to 67 years of life unless the Socialized medicine politicians steal it from him. I have heard the attacks on the medical profession in legislative halls and have helped to refute them. I am well aware of the criticism that is leveled at you sometimes justly but far more often unjustly. Mostly it comes because of too much professionalism and too little sympathy, kindness and understanding on the part of a busy doctor. But all of this is of minor importance compared to the main issue, socialized medicine: we want none of it.

I have purposely stressed the threat to our freedoms for that is our common cause. Within the past fortnight the same alarm has been sounded in three different state press meetings. In Minneapolis, Minn., Ralph Keller, secretary-manager of the state association and a competent leader, said: "a discouraging number of passes were made at the freedom of the press during the recent session of the Minnesota legislature. The trend is evident in legislation in both state and federal levels." A similar thought was expressed in a press meeting that week in Boulder, Colorado. Again at Elkins, West Virginia, Jim Weir, publisher and veteran association executive, stated it this way: "complacency, indifference and irresponsibility, a creeping disease, is to be seen on all sides, in all the levels. An alert press is not alone sufficient to protect us from the dangers from within and from without. A rebirth of responsibility and a resurgence of freedom is needed."

I am emphasizing today the need for the continued help of the Medical profession to bring about the rebirth of responsibility and the resurgence of freedom that my friend Jim Weir speaks about. I am also extending an invitation to all other groups and national organizations that believe as we do to join with us for we must be united if we win this fight. In far too many places there is a lack of effective leadership either in the medical profession or at the newspaper office. In those places it must come from some other group. Through our combined efforts we must somehow, some way, rekindle in the heart of every true American that spark of patriotism so necessary to good citizenship in our republic. We must never lose sight of the fact that free enterprise made America great and free enterprise will keep America great. We must speak up for America and her institutions at every opportunity. We must ever remember that what a man does for himself dies with him, but what he does for his community, his state, and nation lives on forever in the minds of his fellow men. We must do all within our power to preserve our constitutional form of government. We must live our daily lives to the honor and glory of God whose universal laws are the cornerstone of the nation we love. If we do all of these things, then you and I and those who follow can continue to enjoy the blessings of this great, liberty loving nation.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

SENATORS WARN AMA DELEGATES OF STATE SOCIALISM

Senators Robert A. Taft and Harry F. Byrd charged that growth of Federal power perils individual liberties in America and is leading toward state socialism. This warning was voiced to the House of Delegates of the American Medical Association in its Interim Session in Los Angeles last month.

Scoring current trends of government control, Senator Taft said that the fundamental problem before Americans today is "how best to maintain the great progress they have made under liberty. That liberty is threatened by the forces of Communism from abroad and is threatened by growing Socialism and government control at home."

Explains Socialism Meaning

Today's liberty, Senator Taft continued, is threatened by "what is roughly called Socialism." He said:

> "By that I mean the growing power of government in the affairs of all individuals and its increased activity in many fields where it has never heretofore been involved."

He described the increase in government controls by saying that in 1931 the Federal Government conducted 6 per cent of the country's activity. In 1949, before the start of the mobilization program, Washington was spending 10 times as much money as in 1931 and was conducting 18 per cent of the activity. By 1953, he estimated the Government will be spending 38 per cent of the total income.

> "It has undertaken to regulate all industry and commerce and agriculture with great Federal bureaus and huge subsidies. It has taken over functions which were almost exclusively local and it threatens to take over all welfare services through a scheme known as social insurance, which is not insurance but simply more taxation to support free Federal welfare services."

Lauds AMA's Stand

The senator applauded the AMA's efforts to halt the socialistic trends in America, adding that "the doctors are justified in this because the key move of the socialists today is the effort to set up a Federal system of socialized medicine."

> "The Government proposes to collect six or seven billion dollars, mostly in payroll taxes from workmen, and set up a vast Federal bureau to employ nearly all the doctors in the country to furnish free medical service to all the people, including the great majority who are perfectly able to pay for it themselves . . .
>
> "We cannot impose on the hard-working people of the country a burden so great to support the non-workers that it reduces their incentive and their standards of living."

Socialism Has False Blueprint

Senator Taft asked the purpose of this vast expansion of government activity, answering that supposedly it is for the welfare of the man of low and middle income. "Socialism draws a beautiful blueprint, but it utterly destroys the incentive of the individual manufacturer or the individual workman," he said. "In its efforts for equality, it reduces everyone to the dead level of mediocrity. New ideas are discouraged."

> "The more powerful a government becomes, the stronger its propaganda in behalf of more power. The trend cannot be stopped unless you are willing to elect both a President and a Congress who believe that the maintenance of liberty is the first and most essential consideration for progress."

Byrd Cites Fiscal Weakness

Senator Byrd of Virginia told doctors that the "one overshadowing characteristic of the administration now in Washington is fiscal weakness and irresponsibility. From this springs the demand for confiscatory taxes, stifling controls and centralization."

Stating that the administration is guilty of great fiscal irresponsibility and that it is being further exploited by political camp followers who would centralize all power and purse control in Washington, Senator Byrd warned:

> "From these come a deadly assault on the free enterprise system, the creeping socialism and the scandals which Thomas Jefferson foresaw when he said: 'I believe that a consolidated government would become the most corrupt government on earth.'"

Senator Byrd said that America's most inflated item today is the Federal Government itself, and continued:

> "Inflation is conceived and born in Washington. Only the Federal government can spend in unlimited amounts. It alone determines the value of money and the extent of credit. A Federal bond is a first mortgage on all the property owned by every American citizen.
>
> "Once the American dollar goes down, we will enter an age of international darkness. The American dollar is the only thing today that is holding the world together.
>
> "What nation can carry the standard if we fail? Without its light, freedom and progress would perish from the earth. We must not fail."

HOUSE OF DELEGATES REVISES HESS REPORT

The House of Delegates of the American Medical Association, at its December interim session, adopted a policy statement on physician-hospital relations which supplants the controversial "Hess Report." The following principles for guidance of individual practitioners and medical societies in controversies over employment of doctors by hospitals were set forth:

1. A physician should not "dispose of his professional attainments or services" to any hospital or institution under conditions whereby such services are resold.

2. If a hospital does not sell the physician's services, the financial arrangement between them may be placed on any mutually satisfactory basis. Remuneration may be made for teaching or research not only by hospitals but by corporations and other lay bodies.

3. Specialties of anesthesiology, pathology, physical medicine and radiology—the ones chiefly concerned by this AMA policy—are recognized as an integral part of medical practice.

Half Million More to Medical Schools

The House of Delegates also voted to contribute another $500,000 to the American Medical Education Foundation, which has been raising funds within the organization for the unrestricted use of the nation's medical schools.

Approximately $640,000 has been turned over so far by the Foundation to the National Fund for Medical Education. This money, 56 per cent of the amount dispersed by the Fund, was divided among the seventy-nine approved medical schools for use at the discretion of the deans of the institutions.

MEDICAL SERVICE CONFERENCE DATES SET

The National Conference on Medical Service will hold its annual meeting at the Palmer House, Chicago, on Sunday, February 10, 1952. Harlan English, M.D., Danville, Illinois, is this year's chairman, and the Illinois State Medical Society is acting as host.

The tentative program is as follows:

AMERICA'S NEXT SOCIAL AND HEALTH CRISIS

I. Care of the Aged with Chronic Disease
  (A) Size of the Problem—to be presented by an outstanding insurance actuary
  (B) One Partial Solution—to be presented by a representative of a city welfare department

Luncheon

"Our Citizens and Their Doctors"—HON. EVERETT MCKINLEY DIRKSEN, U. S. Senator from Illinois

II. Veterans' Medicine
  (A) "Future Implications of Veterans' Medical Care"—GEORGE CRAIG, Past Commander of the American Legion
  (B) "Unusual Problems in Veterans' Medical Care"—ADMIRAL JOEL T. BOONE, Chief Medical Officer, Veterans Administration, Washington, D. C.
  (C) "Hometown Veterans' Care—A Success or a Failure?"—(Speaker to be announced)

BRITISH M.D.'s CALLED "ARM OF GOVERNMENT"

The piquant phrases of the *Wall Street Journal* have once again been used forcefully to bring out the underlying truths in the latest request of British doctors that the government fine any patients who fail to take the doctors' pills. *The Journal* feels that this step is perfectly logical since "these doctors are just as much an arm of the British government as the bobby on the street corner. They are paid by the government to regulate the public health just as the bobby is to regulate traffic. In either case if the citizens don't carry out instructions the orderly plans are snarled up."

Cannot Shirk Duty

Describing the National Health Service as having gone so far as to take on the duty of running part of the citizens' affairs, the *Journal* decides that the health service cannot shirk its duty, and so it must also regulate a penalty for not obeying any rules established:

> "It's a well established principle that when a government takes on the duty of running any part of its citizens' affairs it is necessary and proper for the government to use its powers of compulsion to see that the people do what the government knows they should do. If the government has the duty to protect the people's health, it surely shirks its duty if it permits people not to take the pills ordered by regulations."

Thus, says the *Journal,* the British doctors are on sound judicial, historical and sociological ground. "And they are really being very reasonable about it. All they want the government to do is fine a patient 10 shillings ($1.40) the first time he violates an order to stay in bed, eat milk toast or wear his government-provided false teeth. Even for a second offense the fine is to be only a pound ($2.80). With commendable British restraint the doctors have refrained from asking for jail sentences."

In spite of the overtone of lightness in the *Journal's* comments, the serious meaning of the situation is clear, and can serve as an adequate warning to those who still think that a government-controlled health insurance program would be advisable for America. This odd proposal for compulsion has all the earmarks of socialistic logic. The *Journal* concludes:

> "We are sure Parliament will act promptly on this request. It's hardly cricket for the medical planner to have the responsibility for regulating the patient's health without the authority to regulate the patient."

VOLUNTARY HEALTH PROTECTION

Reflecting the continuing desire of Americans to choose their own methods of meeting the costs of illness, all forms of voluntary health protection scored tremendous gains in 1950 to set new records, the Health Insurance Council reports in the fourth annual edition of its Survey of Accident and Health Coverage in the United States.

The council survey shows that hospital expense coverage was held by 76,961,000 persons at the end of 1950, a gain of 17 per cent over the figure of 66,044,000 estimated for the year previous. The number of persons protected under hospital coverage has more than doubled since the end of the war.

Surgical expense insurance gained 32 per cent from 41,143,000 to 54,477,000.

Medical expense coverage gained 28 per cent from 16,862,000 to 21,589,000.

The council estimates that the 1950 total was equivalent to coverage on approximately 60 per cent of employed civilian population. The figures do not include the individuals covered solely by government insurance under compulsory plans, but do include all insurance companies, Blue Cross, Blue Shield, fraternal societies, local medical societies, industry, universities and others. —Insurance Economics Survey, October, 1951.

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PROBATION OF MINNEAPOLIS WOMAN REVOKED FOR CRIMINAL ABORTION

Re State of Minnesota vs. (Mrs.) Val A. Ramer

On December 15, 1951, the probation previously granted by the Hon. Rolf Fosseen, Judge of the District Court of Hennepin County, on August 22, 1950, to Mrs. Val A. Ramer, seventy-seven years of age, 4311 Portland Avenue, Minneapolis, on a charge of abortion, was revoked. The defendant, Ramer, admitted to Judge Fosseen that she had committed two criminal abortions while she was on probation. Mrs. Ramer had entered a plea of guilty on June 6, 1950, to an information charging her with the crime of abortion. At that time, Mrs. Ramer also admitted a previous conviction in 1936. Judge Fosseen sentenced Mrs. Ramer on August 22, 1950, to a term of not to exceed three years in the Women's Reformatory at Shakopee, Minnesota, but, because of her age, suspended the sentence and placed Mrs. Ramer on probation for a period of five years.

Mrs. Ramer was arrested on November 28, 1951, following a routine visit to her home by an officer of the Hennepin County Probation Office. At that time, a young woman, who was found in the kitchen of Mrs. Ramer's home, ran outside and fled in an automobile driven by a young man. Various medical instruments were found on a tray in the oven of the defendant's home. Subsequent investigation by the Minneapolis Police Department, Hennepin County Probation Office and the Minnesota State Board of Medical Examiners disclosed that Mrs. Ramer, on November 28, 1951, had aborted a thirty-three-year-old St. Paul woman, who admitted that she was the person who had fled Mrs. Ramer's home on that morning. The same woman admitted that she paid Mrs. Ramer $50.00 two weeks previously, when she first attempted the abortion. She had also been aborted by Mrs. Ramer six or seven years ago. The investigation also disclosed that the defendant Ramer had aborted a twenty-six-year-old unmarried Minneapolis woman on November 27, 1951, for which she was paid the sum of $50.00.

The defendant Ramer was first convicted of the crime of abortion in 1936. On October 30, 1934, the grand jury of Hennepin County returned an indictment charging a Minneapolis physician and the defendant Ramer, with the crime of abortion. In April, 1936, the defendants were placed on trial and both found guilty of abortion. On May 5, 1936, each defendant was sentenced to a term of not to exceed four years, the sentences being stayed and both defendants placed on probation.

MINNEAPOLIS PHARMACIST CONVICTED OF CRIMINAL ABORTION

Re State of Minnesota vs. Meyer S. Furman

On November 26, 1951, Meyer S. Furman, forty-four years of age, 2797 Xerxes Avenue South, Minneapolis, was sentenced by the Hon. Harold N. Rogers, Judge of the District Court of Hennepin County, to a term of not to exceed four years in the State Prison at Stillwater, for the crime of abortion. Judge Rogers stayed execution of the sentence for two years, and placed Furman on probation. Furman, a registered pharmacist, operates the Grant Street Pharmacy at 1333 Nicollet Avenue, Minneapolis.

Furman and Mrs. Clara Olga Anderson, 1728 Bryant Avenue North, Minneapolis, were arrested in September following an investigation by representatives of the Minnesota State Board of Medical Examiners and Minneapolis police officers. That investigation disclosed that $350 was paid to Furman on September 7, 1951, for an abortion on a twenty-one-year-old Swift County girl. The abortion was performed by Mrs. Anderson, who admitted receiving $150 of the money, with Furman pocketing the balance. Furman made the arrangements for the abortion, driving the patient to Mrs. Anderson's home from his drug store, and when no miscarriage resulted, the abortion was repeated on September 21, 1951, by Mrs. Anderson. Furman, who entered a plea of guilty on October 15, 1951, to an information charging him with the crime of abortion, admitted to the Court, prior to being sentenced, that he had referred three patients to Mrs. Anderson for abortions. Furman also admitted that he had been in previous trouble for selling liquor without a license. The records in the Municipal Court in Minneapolis disclose that on April 28, 1939, Furman paid a fine of $100 for selling liquor without a license. On May 24, 1940, Furman was found guilty of selling non-intoxicating malt liquor without a license and was sentenced to ninety days in the Minneapolis Workhouse. Furman filed a notice of appeal but subsequently dismissed the appeal, and on September, 30, 1940, entered the workhouse to serve his sentence. On February 12, 1949, Furman admitted, in a written statement to Minneapolis police officers, having referred "about twenty-five" girls to Martin Peter Schmit, who was sentenced on March 17, 1949, to a term of not to exceed four years in the State Prison at Stillwater for the crime of abortion. Furman graduated from the College of Pharmacy of the University of Minnesota in 1927. Furman's abortion activities have been called to the attention of the Minnesota State Board of Pharmacy.

Furman's co-defendant, Mrs. Clara Olga Anderson, entered a plea of guilty on October 23, 1951, to an information charging her with the crime of abortion. The Court referred her case to the Probation Office for investigation and the imposition of sentence was set for December 17, 1951.

MINNEAPOLIS WOMAN SENTENCED TO 8-YEAR TERM FOR CRIMINAL ABORTION

Re State of Minnesota vs. Clara Olga Anderson

On December 17, 1951, Hon. Harold N. Rogers, Judge of the District Court of Hennepin County, sentenced Clara Olga Anderson, fifty-three years of age, 1728 Bryant Avenue North, Minneapolis, to a term of not to exceed eight years at hard labor in the Women's Reformatory at Shakopee on a charge of abortion.

On October 23, 1951, Mrs. Anderson had pleaded guilty to an information charging her with the crime of abortion, and also with having had two previous convictions for a similar offense, one in 1943, and another in 1946. A plea by the defendant's attorney that the defendant be given probation was opposed by legal counsel for the Minnesota State Board of Medical Examiners and denied by Judge Rogers. Mrs. Anderson and Meyer S. Furman, 2797 Xerxes Avenue South, Minneapolis, were charged as codefendants with the crime of abortion in a complaint issued in September, 1951. Investigation by representatives of the Minnesota State Board of Medical Examiners and Minneapolis police officers, disclosed that the defendant Anderson had twice attempted to do an abortion on a twenty-one-year-old Swift County girl. Mr. Furman had made the arrangements for the abortion on both occasions and accompanied the girl to the defendant Anderson's home. A sum of $350 was paid to Furman for the abortion, $200 of which he kept himself and the remainder was paid to the defendant Anderson. When the girl later was hospitalized the case was called to the attention of the authorities.

The defendant Anderson has two previous convictions for the crime of abortion in the District Court of Hennepin County. After entering a plea of guilty on March 25, 1943, to an indictment charging her with the crime of abortion, Mrs. Anderson was sentenced to a term of not to exceed four years in the Women's Reformatory at Shakopee. However, the sentence was stayed on condition that the defendant serve one year in the Women's Detention Home and then Mrs. Anderson was placed on probation for a period of three years. Again on December 28, 1946, Mrs. Anderson entered a plea of guilty in the District Court of Hennepin County to an information charging her with the crime of abortion, and also having a previous conviction for abortion in 1943. On the same date she was sentenced to a term of three years at hard labor in the Women's Reformatory at Shakopee. Mrs. Anderson has no license to practice any form of healing in the State of Minnesota.

THE ECONOMIC VALUE OF HIGH QUALITY MILK

(Continued from Page 45)

recently said, "Of all the factors of man's environment, none is more important to his welfare than food. Of all foods, none is more important than milk." Nutritionists tell us that one-fourth of our daily food requirements should come from dairy products, yet studies of present trends in the per capita consumption of some dairy products show that we are not in all cases maintaining this one-fourth proportion. The consumer is the one who dictates the world standards, and if this quality is not maintained, the consumer loses interest in the product and looks for a substitute. The present Grade A regulation which is being promulgated in Minnesota was required by the demands of the public that Grade A dairy products be made available to them. In 1900 the average American had to work twenty-seven minutes to earn a quart of milk, and this quart was dipped from a can. Today he receives a safe high-quality product delivered with dependable service right to his home for only nine minutes of work.

High quality of dairy products has definite economic value to the public. The dairy industry affects a considerable proportion of our people, provides nearly one-third of our agricultural income and supplies one-fourth of our food supply. The perpetuation of this industry depends so much on the high quality of its products that no producer, the processor, the consumer and the doubt should be left in our minds of the tremendous economic value of high quality milk to the public.

Normohydration

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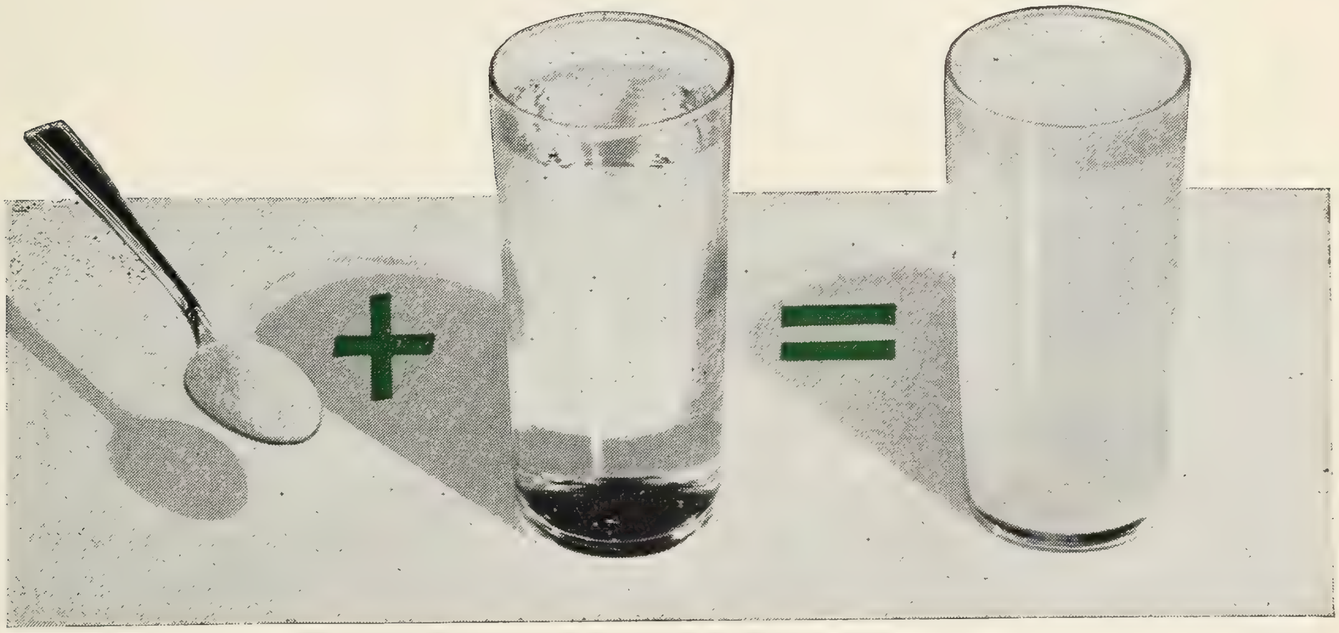

Typically, the constipated stool is dehydrated, whereas the diarrheal stool or that induced by salines and irritants is hyperhydrated, containing free water.

When Metamucil is employed for the management of constipation, it is mixed in a full glass of cool liquid. The ingested liquid containing the mucilloid promotes normohydration.

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✦ Reports and Announcements ✦

AMERICAN COLLEGE OF CHEST PHYSICIANS

The fifth annual Postgraduate Course in Diseases of the Chest sponsored by the Council on Postgraduate Medical Education and the Pennsylvania Chapter of the American College of Chest Physicians and the Laennec Society of Philadelphia, will be presented at the Warwick Hotel, Philadelphia, Pennsylvania, March 24 to 28.

A program covering the entire field of heart and lung disease is being arranged. Dr. Chevalier L. Jackson, Philadelphia, president of the American College of Chest Physicians, is chairman of the postgraduate course committee.

Physicians interested in attending the postgraduate course can communicate with the Executive Offices, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

AMERICAN COLLEGE OF SURGEONS SECTION MEETING

A three-day sectional meeting of the American College of Surgeons will be held at the Radisson Hotel in Minneapolis, Minnesota, on March 24, 25 and 26.

The program will include two days of scientific sessions at the Radisson Hotel and a day of teaching clinics and demonstrations in Minneapolis hospitals. Distinguished speakers will present papers, panels and symposia on current surgical problems, and extensive programs for specialists in opthalmology and otolaryngology have been prepared for March 25. New surgical motion pictures will be shown, including several which were prepared especially for the Cine Clinics at the 1951 Clinical Congress, and also a stereoscopic colored film on radical resection for carcinoma of the stomach, which is attracting a great deal of attention wherever it is shown.

Dr. Harvey Nelson and his Committee on Arrangements have made extensive preparations to assure a good meeting and a warm welcome to Minneapolis for all visiting surgeons. Hotel accommodations may be obtained by writing to Mr. Neil Wilsey, Front Office Manager in Charge of Reservations, Radisson Hotel, Minneapolis 2, Minnesota.

SUMMER CAMP FOR DIABETIC CHILDREN

A summer camp for diabetic children will be opened for the fourth season under the auspices of the Chicago Diabetes Association, Inc., from July 1 to July 22 at Holiday Home, Lake Geneva, Wisconsin.

In addition to the regular personnel of the camp, there will be a staff of dietitians and resident physicians, trained in the care of diabetic children, furnished by The Chicago Diabetes Association.

Boys and girls, ages eight to fourteen years, inclusive, will be accepted at a fee of $120 (which covers the three-week camping period and transportation from Chicago). Fee reductions may be arranged when considered necessary.

Physicians are requested to notify parents of diabetic children and to supply the names of children who would like to attend camp. Applications may be obtained from, and inquiries should be addressed to the Service Unit, Chicago Diabetes Association, 110 South Dearborn Street, Chicago 3, Illinois.

CHICAGO OPHTHALMOLOGICAL SOCIETY

The Chicago Ophthalmological Society has announced that the fourth annual Clinical Conference will be held February 21 to 23 at the Drake Hotel. The first day will be devoted to surgical clinics at various Chicago hospitals. On the following days there will be symposiums on cataract surgery and recent advances in therapeutics, followed by round table luncheons. Additionally there will be lectures concerning neuro-ophthalmology, ocular pharmacology, nystagmus, provocative tests in glaucoma and the secretion of aqueous.

Further information concerning the conference may be obtained from Miss Maud Fairbairn, 8 W. Oak Street, Chicago 10, Illinois.

POSTGRADUATE ASSEMBLY

Los Angeles' largest annually held medical meeting—the Postgraduate Assembly and Convention, sponsored by the Alumni Association of the College of Medical Evangelists School of Medicine—has been scheduled for March 2-4, 1952, at the Biltmore Hotel. This convention is termed the "best in the West."

The 1952 convention features such nationally prominent men as U. S. Army's Major General George Armstrong; Lahey Clinic's Drs. Sara Jordan, Martin Tracey and John Norcross; A.M.A.'s Secretary and General Manager Dr. George Lull; Joslin Clinic's Dr. Priscilla White; Cornell Medical School's Dr. Harold Wolff and Mayo Clinic's Dr. Giles Koelsche,* to mention some of the thirty-seven scheduled to lecture and take part in panel discussions.

Short courses in therapeutics, internal medicine, pediatrics, roentgenology, dermatology, psychiatry, surgery, otolaryngology, urology, proctology, anesthesiology, and obstetrics and gynecology are to be given on March 5, 6 and 7. Educators of the West's medical schools will serve on the faculty for these sessions.

For further information, write Evelyn R. Strachan, Managing Director, 312 North Boyle Avenue, Los Angeles 33, California.

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*Giles A. Koelsche, M.D., will speak on "Current Concepts of the Treatment of Asthma."

Do You Have Investment Income?

First Investor: "I feel quite satisfied with my investments—last year I had an average return of about 5%."

Second Investor: "Well, I averaged about 3% with very safe investments, and the income is all mine."

First Investor: "I don't know what you mean—the 5% return is all mine, isn't it?"

Second Investor: "Aren't you forgetting to consider the federal income tax you must pay on your return? Even with this year's taxes your investment income will be under 3%. It may be less than that with next year's taxes."

First Investor: "What about the income tax on your 3% return?"

Second Investor: "My income tax payments are limited to professional earnings. My investment income is tax-exempt because I buy Municipal Bonds."

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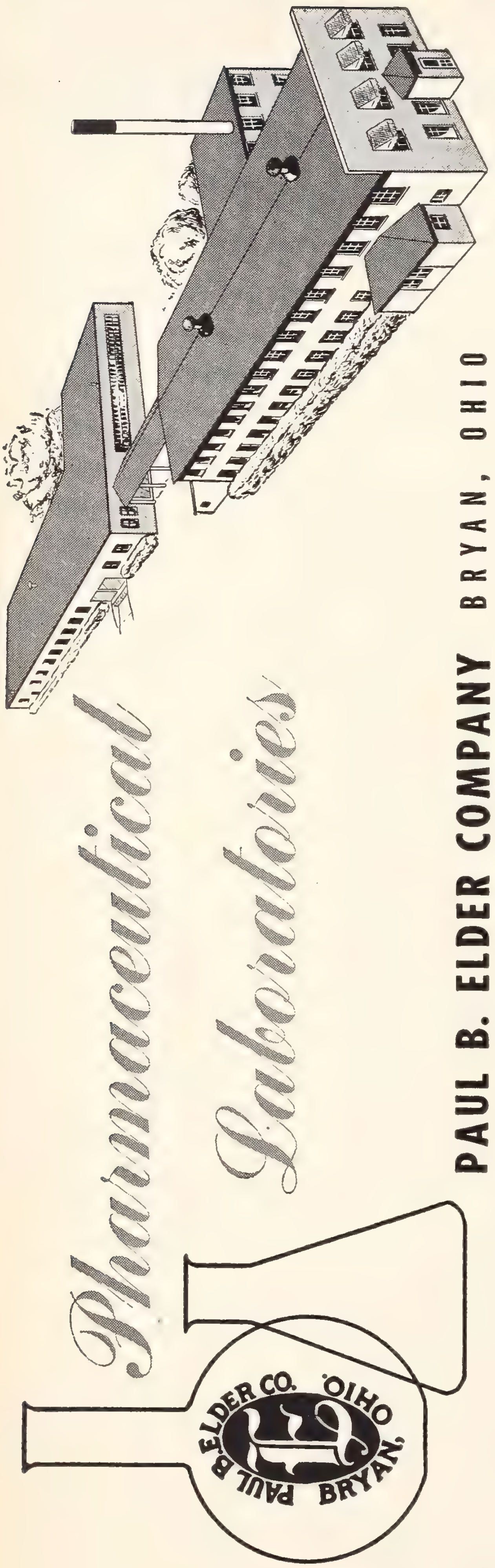
CONTINUATION COURSES

Therapy of Cardiovascular Diseases.—The University of Minnesota will present a continuation course on therapy of cardiovascular diseases February 1 to 16. The course is intended especially for general physicians and will be presented at the Center for Continuation Study. Dr. Charles P. Bailey, professor of surgery, Hahnemann Medical College, Philadelphia, will be the visiting faculty member for the course. He will also give the annual Phi Delta Epsilon Lecture on the evening of Thursday, February 14. His subject at that time will be "Recent Advances and Future Trends in Cardiovascular Surgery." Dr. Bailey is well known throughout medical circles for his work on surgery of rheumatic valvular heart disease. He will report on this work in a lecture in the continuation course.

Dermatology.—Dermatology will be the subject of a continuation course for general physicians to be presented by the University of Minnesota, February 28 to March 1. Dr. Arthur C. Curtis, professor and chairman of the Department of Dermatology, University of Michigan, will be the visiting faculty member for the course. The course will be presented under the direction of Dr. Henry E. Michelson, chairman of the Division of Dermatology at the University of Minnesota.

X-Ray for General Physicians.—The University of Minnesota will present a continuation course in x-ray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for general physicians at the Center for Continuation Study on March 3 to 5. The course will be under the direction of Dr. Leo G. Rigler, professor and head of the Department of Radiology. Special emphasis will be placed on x-ray techniques, x-ray diagnosis of fractures, other bone lesions and pulmonary lesions. In addition to lectures on these subjects, practical demonstrations will be held. The registrants for the course will be invited to bring their own films to the course for discussion.

BLUE EARTH COUNTY SOCIETY

The Blue Earth County Medical Society held its annual meeting at Mankato on December 10 and elected the following officers: Dr. Robert B. Engstrom, president; Dr. John C. Mickelson, vice president, and Dr. William S. Chalgren, secretary-treasurer, all of Mankato. Dr. John C. Vezina, Mapleton, was named delegate to the Minnesota State Medical Association.

CLAY-BECKER COUNTY SOCIETY

Officers elected at the annual meeting of the Clay-Becker County Medical Society at Detroit Lakes on December 8 were as follows: Dr. V. D. Thysell, Hawley, president; Dr. A. S. Midthune, Lake Park, vice president, and Dr. William C. Dodds, Detroit Lakes, re-elected secretary-treasurer.

MOWER COUNTY SOCIETY

This year, 1952, is the fiftieth anniversary of the Mower County Medical Society. The society, which was founded on October 3, 1902, will be the sponsor this year of the annual meeting of the Southern Minnesota Medical Association to be held at Austin in September.

President of the society is Dr. L. F. Twiggs, with Dr. T. M. Seery as vice president and Dr. F. H. Rosenthal as secretary-treasurer, all from Austin.

RAMSEY COUNTY SOCIETY

New officers of the Ramsey County Medical Society, elected at a meeting in Saint Paul on November 26, are Dr. J. P. Medelman, president, succeeding Dr. F. G. Hedenstrom; Dr. P. F. Donohue, president-elect for 1953, and Dr. Laurence D. Hilger, re-elected secretary-treasurer. All are from Saint Paul.

RED RIVER VALLEY SOCIETY

At the annual meeting of the Red River Valley Medical Society at Crookston on December 11, the following officers were elected: Dr. M. D. Starekow, Thief River Falls, president; Dr. George S. Boyer, Crookston, vice president, and Dr. R. O. Sather, Crookston, re-elected secretary-treasurer. Dr. L. N. Dale, Red Lake Falls, was the retiring president.

Forty physicians attended the meeting, at which the main topic for discussion was the legal aspect of various medical problems. It was decided to appoint a committee to develop a code governing the relations of the medical profession with hospitals, the press and radio.

Woman's Auxiliary

PRESIDENT-ELECT REPORTS ON STATE PRESIDENTS CONFERENCE

Mrs. C. L. Sheedy
President-Elect

Attending the eighth annual conference of state presidents, presidents-elect and national committee chairmen is an exciting experience, especially when one is trying to land at the Chicago Airport with seven small tornadoes dancing in attendance. One just knew that, with such a stimulating beginning, this was no ordinary conference. It is a pleasure to meet at last, in person, these pen pals of ours who have spurred us on to such goals. When we talk to them and find them mindful of our problems, we realize how much effort and time they must spend to guide us in the right direction.

The conference will be reported in detail in *The Bulletin,* and Dr. Walter Judd's very fine speech will be distributed to the Auxiliary members, so I wish to tell you some of the thoughts left with us by Mr. Edward O'Connor, Managing Director of Insurance Economic Society of America, whose organization is devoted to the study of social insurance. He quoted Winston Churchill's statement, "Free enterprise has its faults, but it is much better than Socialism with its blessings of misery." Fortunately, sufficient people have come along and stressed a positive dislike for the further development of Socialism. We have gone so far down the path of hand-out state, he continued, that it is impossible to shoot Santa Claus, but I do believe we have begun to sober him up.

We are in a great epic struggle in this country. It is not the old-time contest between the Republicans and Democrats, or what political system works better; it is not a struggle to make democracy work, but to destroy it, not to make it equitable and beneficial to all, but to substitute a system entirely different from that which we have lived and prospered under for one hundred and fifty years.

This situation exists because we have all been smug and complacent. We have taken our freedom for granted. We have assured ourselves that the United States is the greatest nation in the world, that we are God's chosen and that no evil can come to us. But, all of the time, we are being blinded by our own reflection, either being unwilling or unable to see that those things that could not happen here have actually happened. A whole generation has been taught that the world owes them a living; that the government can provide a job for everyone from the cradle to the grave, a doctor at your side and government pills when you are sick, a nice funeral when you die, a beautiful plot in the cemetery.

Our problem today is to help the public differentiate between true and false liberalism and get out of that dangerous habit of succumbing to propaganda, and following the chant of the auctioneer. Propaganda is an art which has been fully developed in this country during the past twenty years. Its potency has been amply demonstrated in other lands.

The proponents of socialized medicine and sickness compensation never tire of beating the drums for their socialistic wares and never tire of subjecting the public to a barrage of twisted facts. They would destroy the most successful medical system the world has ever known and replace it with a system that has never worked anywhere. They fail to understand they cannot legislate health into being any more than you can create temperance by voting in the Volstead Act.

Mr. O'Connor closed by telling us that the freedom which we enjoy is not a permanent possession. It did not come as the result of a hand-out, nor is it self-perpetuating. Freedom is not free and it never was and never will be. It has a price tag: it requires eternal vigilance, alertness to expose every threat and to be prepared to fight those misguided individuals who would deprive us of our heritage in this country, which was built by men who relied on themselves.

We hold our destiny in our hands. There is a crooked and rocky road to slavery with its rosy promises and horrible realities and there is the straight road, the tried and proven road of freedom, the American way. We must make the decision. Do we want to be free people or slaves of the State? The hour is late, the time for action is NOW.

I am sorry not to be able to quote you the entire speech, but I am sure, with what little I have given you, you agree that Mr. O'Connor gave us much to reflect upon.

Needless to say how proud Mrs. Moersch, Mrs. Bakkila and I were of Mrs. Wahlquist, who always in her charming manner conducts with such enthusiasm and draws everyone into the spirit of her theme for this year, "Working Together for Health."

NICOLLET-LE SUEUR HOLDS MEETING

Dr. Burton P. Grimes, Superintendent of the St. Peter State Hospital, spoke on "Mental Health" at a luncheon meeting of the Nicollet-Le Sueur County Medical Auxiliary on October 15 in St. Peter, Minnesota. About thirty-five auxiliary members and guests heard Dr. Grimes' discussion of various aspects of mental health.

The personal attitudes of the patient are important in the treatment of any disease in which the patient's cooperation must be elicited. The more chronic the illness, the greater importance these personal factors assume. Osler summed up the situation in tuberculosis when he said, "It is just as important to know what is in a man's head as what is in his chest if you want to predict the outcome of his pulmonary tuberculosis."—JEROME HARTZ, M.D., *Public Health Reports,* October 6, 1950.

In Memoriam

A. W. ADSON

The following memorial to the late Dr. A. W. Adson, of Rochester, was incorporated in the report of the Council of Medical Service of the American Medical Association to the House of Delegates assembled in Los Angeles, California, in December, 1951.

MEMORIAL TO DR. A. W. ADSON

This report would not be complete without a word of appreciation of the services of Doctor Adson who was stricken while attending the North Central Conference in Minneapolis and died the following day, November 12, 1951.

In addition to his outstanding scientific attainments, he gave unstintingly of his time and energy to perpetuate and further the high standards of the medical profession.

Doctor Adson was a leader in the creation of the Council on Medical Service in 1943 and served on the Council from its origin until 1948. Part of that time he was its Vice Chairman and more recently he served as chairman of the Council's Committee on Prepayment Hospital and Medical Service.

He will be missed by all members of the Council, by the members of the House of Delegates, and by his many friends throughout the country who have had the privilege of his counsel and friendship.

James R. McVay, *Chairman*
Mr. Thomas A. Hendricks, Secretary

GEORGE CHARLES BRUTSCH

Dr. G. C. Brutsch, of Minneapolis, died November 9, 1951, at the age of fifty. He was born in Ceylon, Minnesota, in 1900.

He was a member of the Class of 1931 of the University of Minnesota Medical School and had practiced in Minneapolis since his graduation.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Brutsch is survived by a brother, Elmer, of Estherville, Iowa, and four sisters.

AXCEL CONRAD BAKER

Dr. A. C. Baker, a physician for nearly fifty years at Fergus Falls, Minnesota, died December 7, 1951, at the age of seventy-seven.

Born in Rochester, Minnesota, September 28, 1874, he attended the University of Minnesota where he obtained a B.S. degree. His M.D. degree was obtained from Northwestern Medical School in 1901. He interned for two years at Wesley Hospital in Chicago.

Dr. Baker was a member of the Park Region District and County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a Fellow of the American College of Surgeons and had served as President of the Northern Minnesota Medical Association.

Dr. Baker is survived by his wife Katharyn H. Baker; two sons, Norman of Fergus Falls, Charles of Belle Fourche, South Dakota, both of whom are physicians, and two daughters, Kathryn (Mrs. Robert) Hyslop of Fergus Falls and Mary (Mrs. Harold) Mattlin of Coronado, California.

F. R. CROSON

Dr. F. R. Croson, formerly of Proctor, Minnesota, died on November 7, 1951.

Born at Aledo, Illinois, he received his medical education at Northwestern University Medical School, graduating in 1918. He was associated with Dr. Webber in the Missabe Hospital and was a member of the St. Louis County Medical Society during his stay in Minnesota.

Dr. Croson was at one time president of the Kansas State Medical Association and had practiced in Clay Center, Kansas, from 1925 until he retired from active practice last summer.

RALPH T. EDWARDS

Dr. Ralph T. Edwards, formerly of Elysian, Minnesota, died October 12, 1951, at Big Fork, Montana, where he had been living with a daughter since his retirement from active practice several years ago.

Dr. Edwards was born near Plymouth, Illinois, April 22, 1872. He attended Pomona College at Claremont, California, and graduated from Knox College, Galesburg, Illinois, with an M.A. degree in 1899. He graduated from Johns Hopkins medical school in 1904.

He was associated with the U. S. Bureau of Science at Manila from 1905 to 1908 and was Director of the Government's Serum Laboratory at Phrapatoom from 1908 to 1910. After practicing at Galesburg, Illinois, a year; at Warsaw, Illinois, a year; at Ceylon, Minnesota, three years; at Manila, three years, and in Siam, two years, he settled in Elysian, Minnesota, where his special interest was directed to Ophthalmology.

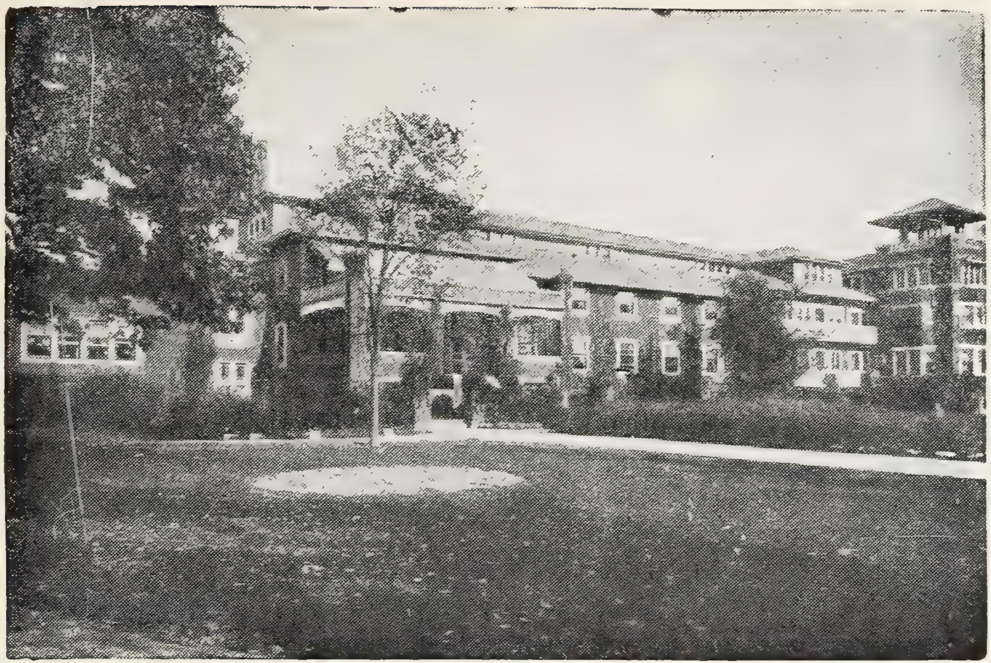
Dr. Edwards was a member of the Blue Earth County Medicial Society, the Minnesota State Medical Association and the American Medical Association.

He is survived by two daughters, Mrs. Mary E. Jung, of San Diego, and Emma H. Edwards, of Big Fork, Montana; and one son, R. Stanley Edwards, of Chagrin Falls, Ohio.

EVERET FLOYD GRAVE

Dr. E. Floyd Grave, founder of the Medical Arts Clinical Laboratory in Minneapolis, died December 20, 1951, at the age of sixty-seven.

He was born in Monrovia, Indiana, August 13, 1884. He obtained a B.S. degree from Carleton College in 1908 and graduated from Johns Hopkins University in



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1914. He interned the following year at the City and County Hospital in Saint Paul. He took postgraduate training at Minnesota and Wisconsin State Universities in laboratory procedure and served as a major in World War I. He was pathologist at Asbury, St. Barnabas, Eitel and the Minneapolis Veterans Hospitals.

Dr. Grave was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. In 1939 he was elected a fellow of the American Society of Clinical Pathologists.

Dr. Grave is survived by his wife, Katherine M., a daughter, Katherine Ann, and a brother, Thomas H. Grave, of Gresham, Oregon.

WALDO N. GRAVES

Dr. W. N. Graves of Duluth died on December 5, 1951, at the age of fifty-three.

Dr. Graves was born at Indianola, Iowa, February 26, 1898. He received an A.B. degree from the University of South Dakota in 1920 and completed his medical training at Rush Medical College where he received his M.D. in 1923. His internship was served at Cook County Hospital, Chicago. Three months of postgraduate work were spent at the University of Vienna.

Dr. Graves was associated for some seventeen months with Dr. Robert Emmett Farr of Minneapolis and for eighteen months with the Peabody Clinic at Webster, South Dakota.

Dr. Graves was a member of St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a Fellow of the American College of Surgeons, the Interurban Academy of Medicine and the Duluth Surgical Society.

Dr. Graves was a veteran of both World War I and World War II, having served in the U. S. Navy.

He is survived by his parents, his wife and two children.

A. D. HASKELL

Dr. A. D. Haskell, well known physician of Alexandria for the past four decades, passed away December 2, 1951, at the age of seventy-four.

Dr. Haskell was born at Anoka, Minnesota, May 16, 1877. He obtained his M.D. degree from the University of Minnesota in 1900 and interned at the City and County Hospital (now the Ancker) in Saint Paul. He practiced at Carlos, Minnesota, from 1900 to 1910.

Married in Minneapolis in 1907, Dr. and Mrs. Haskell moved to Alexandria in 1910.

Always active in community affairs, Dr. Haskell served as mayor in 1937 and as a member of the city council and board of public works during his residency in Alexandria. He was president of the Park Region Medical Society in 1928 and was a member of the Minnesota State Medical Association and the American Medical Association.

Dr. Haskell is survived by his wife.

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RUSSELL ROBERT HENDRICKSON

Dr. R. R. Hendrickson of Crookston died December 18, 1951, at the age of forty-eight.

Dr. Hendrickson was born at Iron River, Wisconsin, August 17, 1903. He attended Eveleth High School and Eveleth Junior College. He obtained an M.D. degree at the University of Minnesota in December, 1927, and interned at St. Mary's Hospital, Duluth.

At one time Dr. Hendrickson served as medical officer for the St. Cloud reformatory. He practiced at St. Cloud from 1930 to 1938. He was at one time superintendent and medical director of Buena Vista Sanatorium at Wabasha, superintendent of Fair Oaks Lodge sanatorium at Wadena and of Sand Beach Sanatorium at Lake Park, near Detroit Lakes. During World War II, he was tuberculosis specialist for the U. S. Public Health Service in Alaska and served as chief of the tuberculosis service at the Marine Corps hospital in New York. He was medical director and superintendent of Sunny Rest Sanatorium at Crookston for nine months before his enforced retirement because of a heart ailment.

Dr. Hendrickson is survived by his wife, two sons, Russell J., and Jack, and a daughter, Mary Katherine.

OLAF KITTLESON

Dr. Olaf Kittleson, a native of Zumbrota township, Minnesota, died December 5, 1951, at Willmar, Minnesota, where he was a member of the medical staff at the State Hospital. He was sixty-four years of age, having been born July 13, 1887.

He attended the high school at Zumbrota and graduated from the University of Minnesota medical school in 1912. He was a fellow at the Mayo Clinic for two years and later served in World War I for three years.

Dr. Kittleson practiced medicine in Minneapolis and in Zumbrota before accepting a position at the Willmar State Hospital in February, 1951. He had never married.

THURSTON WILLIAM WEUM

Dr. Thurston William Weum, a specialist in obstetrics and gynecology in Minneapolis for more than thirty years, died on December 20, 1951, at the age of sixty-nine, after a long illness.

Dr. Weum was born in 1882 at Norcross, Minnesota, and attended school at Moorhead. He attended the University of Minnesota and the University of Chicago before obtaining an M.D. degree at Northwestern University.

He practiced medicine at Duluth and at South Haven, Minnesota, before locating in Minneapolis.

Dr. Weum was a diplomate of the American Board of Obstetrics and Gynecology and a fellow of the American College of Surgery. He was also a member of the Central Association of Obstetrics and Gynecology, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He had been on the faculty of the Medical School of the University of Minnesota since 1918.

Dr. Weum is survived by his wife, Evelyn, and two daughters, Mrs. Marjorie Yench of New York and Audrey Weum of Milwaukee.

Of General Interest

In the Third Supplement of the United States Pharmacopoeia XIV, the definition of Liver Injection is changed to read:

> "Liver injection is a sterile solution in water for injection of that soluble thermostable fraction of mammalian livers which increases the number of red corpuscles in the blood of persons affected with pernicious anemia. Each cubic centimeter of Liver Injection has a vitamin B_{12} activity equivalent to either 10 or 20 micrograms of cyanocobalamin. The potency is not less than 100 per cent and not more than 150 per cent of that stated on the label.
>
> "Liver injection may contain not more than 0.5 per cent of cresol or of phenol as a bacteriostatic agent."

Thus, liver injection in the future will be standardized so that the activity of one unit corresponds to that of one microgram of B_{12}. This change became official on January 1, 1952. Official preparations will have an activity of 10 or 20 micrograms per cubic centimeter.

* * *

Dr. Robert E. Gross, Ladd Professor of Children's Surgery at Harvard Medical School, will present the George E. Fahr lecture on "Coarctation of the Aorta" on April 8 at 8:15 p.m., at the ampitheater, Owre Hall (formerly Medical Sciences) at the University of Minnesota.

* * *

Dr. Marie K. Bepko, Cloquet, attended the third Congress of the Pan-American Medical Women's Alliance, Inc., at Montevideo, Uruguay, from December 2 to 8. The meeting was held in conjunction with the Pan-American Pediatric Society and the South American Pediatric Society. Tied in with the meeting was a tour which included visits to Rio de Janeiro, Buenos Aires, Santiago and Lima in South America and Port-of-Spain and San Juan, Puerto Rico. Dr. Bepko was away from Cloquet for about a month while on the tour.

* * *

Dr. Robert E. Priest and **Dr. William J. Kucera, Jr.,** are now associated at 302 Medical Arts Building, Minneapolis, in the practice of otolaryngology, laryngeal surgery and broncho-esophagology. Dr. Kucera, a graduate of the University of Minnesota Medical School, completed a three-year fellowship in otolaryngology at the University of Illinois on July 1, 1951. He is the son of **Dr. William J. Kucera, Sr.,** of Minneapolis.

* * *

After serving on the board of education at Wadena for eighteen years, **Dr. John S. Grogan** of Wadena resigned early in December. He stated that because of his duties with the Red Cross blood mobile unit he was unable to attend board meetings. During his years of service on the board Dr. Grogan was very active in developing school athletic facilities in Wadena.

Dr. Ralph T. Knight, Minneapolis, was elected president-elect of the American Society of Anesthesiologists at the annual meeting held at Washington, D. C., in November. Dr. Knight is a member at present of the board of directors and of the executive committee and will take office as president in November, 1952.

* * *

G. Ray Higgins, former director of students' unions at the University of Minnesota, was recently appointed executive secretary of the **Minnesota Heart Association.** Mr. Higgins has been director of students' unions for the past ten years.

* * *

It was announced on December 12 that **Captain Alexander M. Boysen,** a former Minnesota physician, had been listed by the Peking, China, radio, in a propaganda broadcast about treatment of prisoners, as being among the United States prisoners of war in Korea. Dr. Boysen was reported on July 12, 1950, as missing in action, and a few weeks later it was first reported that he was a prisoner of war. Minnesota Medicine has not yet heard whether his name was on the "official" lists released by the Reds later last month.

* * *

Dr. and Mrs. R. P. Michels, Willmar, returned home on December 6 from Chicago, where Dr. Michels took a week of postgraduate study.

* * *

Minnesota Blue Cross—Blue Shield is sponsoring Cedric Adams' "Dinner at the Adams'" half-hour radio show every Friday night from 7:00 to 7:30 p.m. over the WCCO-CBS station. This is the strongest and most influential station in the Northwest and will transmit information regarding these voluntary hospital and medical plans throughout the state.

* * *

Dr. Jan H. Tillisch, Rochester, has been appointed medical adviser to Mid-Continent Airlines. He has been a director of the company since 1949.

* * *

Dr. Allan J. Blake, Hopkins, has resigned as physician for the county home school for boys due to the demands of his private practice. He held the school post for the past two years.

* * *

The annual Phi Delta Epsilon lectureship at the University of Minnesota will be given in the auditorium of the University's Museum of Natural History at 8:15 p.m. on February 14. **Dr. Charles P. Bailey,** Philadelphia, will discuss "Recent Advances and Future Trends in Cardiac Surgery." All physicians and medical students are invited to attend.

* * *

Dr. Albert V. Stoesser and **Dr. Lloyd S. Nelson,** Minneapolis, have moved their offices from 1409 Willow Street to the LaSalle Building (Suite 616), located at Seventh Street and Marquette Avenue, Minneapolis. Their practice is limited to pediatrics and allergy.

* * *

It was announced in November that **Dr. Bernard S. Nauth**, Bagley, had resumed his practice at the Clearwater Clinic following a two-month absence. He is associated in practice with Dr. L. J. Larson.

* * *

Kenny Therapists.—Fifteen registered nurses and physical therapists from seven states and two foreign countries were awarded certificates as graduate Kenny therapists in the treatment of infantile paralysis in ceremonies at Westminster Presbyterian Church, Minneapolis, on December 19.

They were from a group of forty-eight trainees, the largest class to be in training as student Kenny therapists since the Kenny Institute, the Kenny Foundation's international Kenny therapist training center, was opened in Minneapolis in 1942. Thirty-three students are still in various phases of their training.

Designed to qualify trainees to become Kenny therapists, a new twenty-four-month course will be opened to registered nurses and physical therapists at Kenny Institute in June. Application blanks for Kenny therapist training scholarships for nurses and physical therapists are available by writing to the Director of Training, Sister Elizabeth Kenny Foundation, 1800 Chicago Avenue, Minneapolis, Minnesota.

Marvin L. Kline, executive director of the Kenny Foundation, was principal speaker at commencement exercises for the 1951 class. Dr. Miland E. Knapp, chief of physical medicine in charge of therapist training for the foundation, presented the certificates.

The training of Kenny therapists consists of an intensive course in the Kenny concept and treatment of poliomyelitis. This specialized training is supplemented by courses in anatomy and physiology at the University of Minnesota Medical School. Students serve through two periods of polio incidence during their training course, which includes classroom instruction and work with polio patients. Before receiving a certificate, the trainee is given an opportunity to demonstrate ability to manage polio cases from admission to final discharge. Upon graduation, new fully-qualified Kenny therapists are assigned to one of the Kenny facilities in this country.

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* * *

Dr. Elmer T. Cedar, Minneapolis, has been elected president of the Minnesota Dermatological Society.

* * *

Dr. R. A. Whitney, formerly of Cambridge, recently purchased a medical practice at Forsythe, Montana, and moved there to take it over about January 15. Dr. Whitney practiced medicine in Cambridge from 1938, except for a period during World War II when he was in military service.

* * *

Dr. Edgar J. Huenekens, Minneapolis, recently attended the Pan-American Pediatric Congress held at Montevideo, Uruguay.

* * *

Dr. Owen H. Wangensteen, chief of the University of Minnesota Department of Surgery, has been elected president of the Minnesota Academy of Medicine. Re-elected secretary of the organization is **Dr. Wallace P. Ritchie,** clinical assistant professor of neurosurgery.

* * *

Dr. Roger P. Hallin, Worthington, attended a one-day meeting of the Minnesota chapter of the American Academy of General Practice in Saint Paul in November. Dr. Hallin is associated with the Worthington Clinic.

* * *

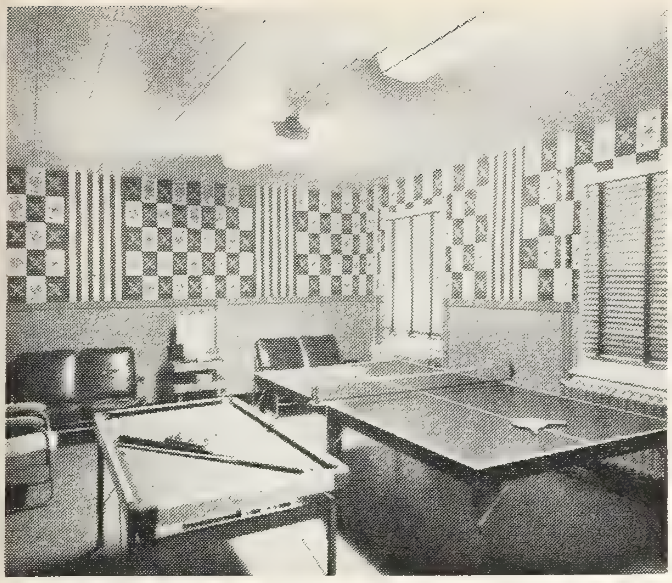
"Surgical Lesions of the Adrenal Glands" was the title of a talk given by **Dr. J. T. Priestley,** Rochester, at a meeting of the Saint Paul Surgical Society on November 21.

* * *

Dr. Herman Linde, Cyrus, was the subject of a biographical feature story in the *Cyrus Leader* on November 15. Now practically retired, Dr. Linde has practiced at Cyrus since June, 1905. In addition to his practice, he has always been active in civic and community affairs.

* * *

Dr. Ruth Boynton, director of the student health service at the University of Minnesota, was the guest speaker at a meeting of the Woman's Auxiliary



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to the Hennepin County Medical Society in Minneapolis on January 4. The title of her talk was "Impressions of Great Britain."

* * *

Principal speaker at the first annual meeting of the nurses of Stearns County, held at Melrose on December 10, was **Dr. Robert N. Barr,** deputy executive officer of the Minnesota Department of Health. He discussed the advances made in fighting communicable diseases and described the problems now involved in diseases of the older age groups.

* * *

Dr. and Mrs. Charles H. Slocumb returned home to Rochester on November 14 after a two and one-half month trip to Europe. During the trip Dr. Slocumb, who is a consultant in the section on rheumatology at the Mayo Clinic and president of the American Rheumatology Association, spoke at several medical meetings and visited numerous hospitals.

* * *

On December 14 the board of regents of the University of Minnesota approved the appointment of **Dr. Robert B. Howard** as director of continuation medical education. Dr. Howard succeeds **Dr. George Aagaard,** who resigned on December 31 and became dean of Southwestern Medical School at the University of Texas.

Dr. J. D. Van Valkenburg was honored at a farewell party given by residents of Floodwood on December 30. Called back to service, Dr. Van Valkenburg left Floodwood on January 5 to become a major in the Air Force. He first began practice at Floodwood in 1936 and was there continuously, with the exception of four years which he spent in service during World War II.

* * *

At the annual staff meeting of the Mayo Clinic in Rochester on November 19, **Dr. J. W. Kernohan** was elected staff president, succeeding **Dr. Paul A. O'Leary.** Named as vice president was **Dr. L. T. Austin,** while **Dr. M. B. Coventry** was re-elected secretary.

The staff also approved a reorganization plan enlarging the clinic board of governors from nine to eleven members. The board was enlarged, it was said, to facilitate the handling of administrative problems of the steadily growing clinic. One of the new members named to the board is a physician, **Dr. M. W. Comfort,** a consultant in internal medicine at the clinic.

* * *

Dr. Roger L. J. Kennedy, Rochester, spoke on "Catholic Action" at a meeting of the Queen of Angels Holy Name Society in Rochester on December 9. Dr. Kennedy was recently honored by

Pope Pius XII and given the title of Knight of St. Gregory for his religious and civic activities.

* * *

Dr. Hamlin Mattson, Minneapolis, has been invited by the board of the Swedish Surgical Society to present a paper on the surgery of inguinal hernia at a meeting of the society in Malmo-Lund, Sweden, April 25 and 26.

* * *

Dr. John F. Madden, Saint Paul, was recently elected to the board of directors of the American Academy of Dermatology and Syphilology.

* * *

Dr. Robert B. J. Schoch, Saint Paul city health officer, has been made a fellow of the American Public Health Association. The fellowship is bestowed for outstanding public health work. Dr. Schoch has held his present position in Saint Paul for seventeen years.

* * *

Dr. Jack Heimark, son of **Dr. and Mrs. J. J. Heimark** of Fairmont, has been awarded a three-year fellowship in internal medicine at the Mayo Foundation, Rochester. He is a recent graduate of the University of Minnesota Medical School.

* * *

Guest speaker at a meeting of the Quality Club and the ReVera Club at Redwood Falls on November 19 was **Dr. P. B. Grimes,** superintendent of the St. Peter State Hospital, who described the care given patients and discussed needed improvements.

* * *

Dr. Stanley V. Lofsness, Minneapolis, has joined the associate medical and surgical staff of St. Lucas Hospital at Faribault as consultant pathologist. He will be at the hospital on a part-time basis and will conduct regular clinical-pathological conferences for the staff members. Dr. Lofsness is also associated with the Pathology Department of the University of Minnesota Medical School.

* * *

Dr. Francis G. Blake, wartime advisor to the President on problems of epidemic disease and former dean of the Yale Medical School, has been named civilian technical director of medical research in the office of the Army Surgeon General.

Dr. Blake will serve as expert consultant to Colonel John R. Wood, M.C., chairman of the Army Medical Research and Development Board, in the evaluation of current and proposed research projects conducted by Army medical installations and eighty-one co-operating civilian institutions. He will be responsible for ensuring close co-ordination between the Army's present $10,079,000 medical research effort and similar programs sponsored by the other armed forces and civilian Federal agencies.

Dr. Blake is sixty-four years of age, a graduate of Dartmouth College and Harvard Medical School. He interned at Peter Bent Brigham Hospital in Boston and in 1917 was appointed assistant professor of medicine at the University of Minnesota.

* * *

It was announced during the middle of December that **Dr. Norman J. Lee,** Saint Paul, would become associated in practice with **Dr. W. G. Workman** at Tracy shortly after the first of the year.

* * *

Dr. M. J. McMahon, after twenty-five years of practice at Green Isle, has accepted a position on the medical staff of the St. Cloud Veterans Hospital.

* * *

New officers of the Minnesota and the Minneapolis chapters of the American Academy of General Practice have been announced. For the state chapter they are **Dr. James A. Blake,** Hopkins, president; **Dr. Willis L. Herbert,** vice president, and **Dr. Alexander J. Ross,** secretary-treasurer, both of Minneapolis.

Officers of the Minneapolis chapter are **Dr. Herman E. Drill,** Hopkins, re-elected president; **Dr. E. G. Oppen,** Minneapolis, re-elected vice president, and **Dr. Louis J. Roberts,** secretary-treasurer.

* * *

Open house was held on December 13 at a newly constructed clinic in Dawson, staffed by **Dr. Vilhelm M. Johnson** and **Dr. George Boody.** The one-story, modern designed building is divided into three suites for doctors, with additional rooms for x-ray, emergency surgery, laboratory and business office.

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Appointments to state boards were announced on December 31. Named a member of the Minnesota State Board of Health was **Dr. F. W. Behmler,** Morris, for a three-year term. **Dr. J. A. Bargen,** Rochester, was appointed to the Minnesota State Board of Medical Examiners to succeed the late Dr. A. W. Adson.

* * *

Special citations from the regents of the University of Minnesota were presented to two 1950 Nobel Prize winners, **Dr. Edward C. Kendall** and **Dr. Philip S. Hench,** both of Rochester, at a dinner at the University on November 29. Speakers at the ceremonies for the men who developed cortisone included President J. M. Morrill of the University and **Dr. Owen H. Wangensteen,** head of the Department of Surgery at the University.

* * *

HOSPITAL NEWS

Listed below are the results of recent staff elections at various Minnesota hospitals:

Blue Earth Community Hospital, Blue Earth.—Dr. H. H. Russ, chief-of-staff; Dr. G. W. Drexler, secretary-treasurer.

St. Luke's Hospital, Saint Paul.—Dr. Donald C. Deters, chief-of-staff; Dr. Walter T. Brodie, vice chief-of-staff; Dr. John Farkas, secretary.

St. Cloud Hospital, St. Cloud.—Dr. F. H. Baumgartner, chief-of-staff; Dr. John F. Kelly, vice president; Dr. R. T. Petersen, secretary.

Asbury Methodist Hospital, Minneapolis.—Dr. Harold F. Wahlquist, president; Dr. Wayne H. Hagen, vice president; Dr. Karl D. A. Andresen, secretary-treasurer.

County Hospital, Olivia.—Dr. Chester A. Anderson, president and chief-of-staff; Dr. H. P. Hinderaker, vice president; Dr. M. B. Dahle, secretary-treasurer.

St. John's Hospital, Saint Paul.—Dr. C. Kenneth Cook, president; Dr. T. S. McClanahan, vice president; Dr. C. R. Tifft, second vice president; Dr. F. J. Milnar, secretary.

* * *

It was announced on December 20 that Dr. William C. Heiam is adding another addition to the **Cook General Hospital** at Cook. There will be space for five more beds and a children's room.

* * *

Two new laboratories—a $180,000 installation—were opened at **Minneapolis Veterans Hospital** on December 12. One is a radioisotope laboratory and the other a surgical research laboratory. The research work being done in these new laboratories, together with the numerous other projects being conducted at the hospital, makes the Minneapolis Veterans Hospital the third largest research center in Minnesota.

* * *

The new superintendent of **Minneapolis General Hospital** is Kenneth Holmquist, former assistant superintendent at the University of Minnesota Hospitals. Mr. Holmquist is the first non-medical man to hold the post in the hospital's sixty-four years. He succeeded the late Dr. D. W. Pollard.

Although Mr. Holmquist is administrative head of the hospital, the medical staff has its own chief for professional decisions, Dr. Thomas Lowry. Shortly after taking over, Mr. Holmquist started the policy of holding administrative staff meetings each month, corresponding to the medical staff meetings, which he also attends.

BLUE CROSS-BLUE SHIELD

The Minnesota Blue Shield contract covering U. S. Steel employes which became effective August 1, 1951, contains uniform benefits throughout the nation for subscribers covered by this special contract, and therefore it was necessary to issue a separate schedule of payments to doctors which is titled "Schedule of Payments to Doctors of Medicine for Surgical and Obstetrical Group Contract S-1." The insert in this schedule lists the subsidiary companies affected by this schedule. On October 8, 1951, letters were sent to each participating doctor in Minnesota informing him of this new U. S. Steel schedule which was available upon request to this office. In this letter it was pointed out that most persons covered under this contract live in Duluth or on the Iron Range. In response to this letter, a rather general distribution of this schedule was made, as requested by the doctors or clinics.

During the interval since the effective date of the U. S. Steel contract, it appears that in some instances the doctor or his office assistant is under the impression that the schedule of payments to doctors for U. S. Steel employes replaced the standard "Schedule of Payments to Doctors of Medicine, M.S. 1-5-51." However, the standard schedule as revised May 1, 1951, still determines the amounts paid on all Blue Shield contracts except those subscribers covered under the Steel contract.

The allowances in the Steel contract are somewhat higher for some procedures. Under the Steel schedule some surgical items carry a payment of $200.00 and obstetrical deliveries carry a $60.00 payment. It should be pointed out that only surgical and obstetrical services are payable under the Steel contract. No allowances are included for medical care in the hospital, the home or the office, and further, ancillary services including x-rays, anesthesia and some endoscopic examinations are ineligible for payment as claims. The Steel Contract is not a service but a straight indemnity contract. The payments made by Blue Shield under this contract apply on the doctor's bill but are not necessarily full payment.

October, 1951, was the first month of Minnesota Blue Shield's four years of experience in which over 10,000 claims were processed. This October claim load of 10,348 represents a 60 per cent increase over the 6,009 claims processed in October of 1950. Of further interest in this regard is a comparison of subscriber enrollment in October of each year. In 1950, there were 385,512 subscribers while in October, 1951, there were 515,442 subscribers, an increase of approximately 7.5 per cent. Quite clearly this indicates a sharp increase in the number of claims per thousand contracts.

These claims and enrollment figures are given further emphasis by the cost of claims processed this year as compared with 1950. During October just passed, incurred claims cost amounted to $323,208, whereas claims paid in October, 1950, amounted to $227,729. Also the cost of claims paid during the first ten months of 1950 amounted to $1,781,545, while claims cost for the same period of 1951 was $2,567,017.

Blue Cross payment to hospitals for October was $982,018, and to date this year $9,399,204, compared with $8,165,879 to date last year. During October, 10,141 participant subscribers were enrolled in Blue Cross bringing the total enrollment as of October 31, 1951, to 1,020,806.

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For some time Minnesota Blue Cross and Blue Shield Plans have felt the need of a broader and more personal contact with the general public. The need for better public relations and understanding of the part we play in our statewide community is genuinely felt, and because of the great pulling power of Cedric Adams, experienced during the past non-group campaigns we are now sponsoring Cedric Adams' own show, "Dinner at the Adams."

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GYNECOLOGY—Intensive Course, two weeks, starting February 18, March 17.
Vaginal Approach to Pelvic Surgery, one week, starting March 3, March 31.
OBSTETRICS—Intensive Course, two weeks, starting March 3, March 31.
MEDICINE—Intensive General Course, two weeks, starting May 5.
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New Farm Bureau $25 Deductible Blue Cross Contract

As of January 1, 1952, a $25 deductible clause will be attached to all Farm Bureau Blue Cross group contracts. Blue Cross has developed this $25 deductible contract offering all Farm Bureau subscribers the most amount of benefits for a minimum rate, and yet maintaining the catastrophic coverage that Blue Cross has always given.

The fact that farmers and their families have used 110 per cent more Blue Cross benefits than they paid for accentuated the need of a $25 deductible contract.

The $25 deductible Blue Cross contract specifically geared to the needs of Farm Bureau members was adopted after careful study by Minnesota Blue Cross and the Farm Bureau Federation board members who long have been seeking a satisfactory answer to the task of giving farm bureau subscribers the most protection at a minimum rate.

The $25 deductible feature for all Farm Bureau subscribers and their dependents will permit Blue Cross to offer seven dollars a day for room, board, and general nursing allowance in place of $5 included under the present contract offered most Farm Bureau members, plus full and complete service benefits for ancillary services included in the contract at no increase in rates.

When the Farm Bureau subscriber or one of his dependents is hospitalized, he will not be covered for the first $25 of hospitalization. It is the subscriber's responsibility to meet his own hospital bill when the charge is twenty-five dollars or less. The $25 deductible contract gives the Farm Bureau subscribers an opportunity to meet their own hospitalization when the cost is minor, and keeps intact the farmer's right to real protection when the hospital bill is catastrophic.

AIDS TO COMMUNITY HEALTH PLANNING

To help communities start new health councils—or make existing councils better—the National Health Council has prepared a new "loan kit" of health promotion literature. The kit, entitled "Aids to Community Health Planning," may be borrowed for a month at a time, with privilege of renewal, or purchased for $2.50.

A health council is a planning and co-ordinating body of voluntary health groups, professional societies, official agencies and citizens' groups working together for community health. There are thirty-two state and 1,200 local councils in the country today, the National Health Council reports.

Divided into six sections, the kit contains more than a score of pamphlets, leaflets and reprints for the use of individuals and groups seeking to improve their community's health programs.

The material covers programs, activities, structure and financing of health councils. It includes sample constitutions and by-laws both for rural and urban councils and for health divisions of welfare councils.

For loan or purchase, write: National Health Council, 1790 Broadway, New York 19, New York.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

PATHOLOGY OF THE FETUS AND THE NEWBORN. Edith L. Potter, M.D., Ph.D. Associate Professor of Pathology, Department of Obstetrics and Gynecology, University of Chicago; Pathologist, Chicago Lying-in Hospital; Chief Pathologist, Chicago Department of Health. 574 pages. Illus. Price $19.00, cloth. Chicago: Year Book Publishers, Inc., 1952.

PLASTIC SURGERY OF THE NOSE. James Barrett Brown, M.D. Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Missouri; Chief Consultant in Plastic Surgery, United States Veterans Administration, Washington, D. C.; formerly Senior Consultant in Plastic Surgery, U. S. Army and in E.T.O., and Chief of Plastic Surgery, Valley Forge General Hospital; and Frank McDowell, M.D., Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Missouri. 427 pages. Illus. Price $15.00, cloth. St. Louis: C. V. Mosby Co., 1951.

BIOLOGICAL ANTAGONISM—The Theory of Biological Relativity. Gustav J. Martin, Sc.D. Research Director of the National Drug Co., Philadelphia. 516 pages. Illus. Price $8.50, cloth. Philadelphia: The Blakiston Co., 1951.

SURGERY OF THE OBLIQUE MUSCLES OF THE EYE. Walter H. Fink, M.D., Minneapolis. 350 pages. Illus. Price $8.75, cloth. St. Louis: C. V. Mosby Co., 1951.

ANNUAL REPORT ON STRESS. Hans Selye, M.D., Ph.D. (Prague), D.Sc. (McGill), F.R.S. (Canada). Professor and Director of the Institut de Medicine et de Chirurgie experimentales, Universite de Montreal. 511 pages. Illus. Price $10.00, cloth. Montreal, Canada: Acta, Inc., 1951.

THE APHORISMS OF DR. C. H. MAYO AND DR. W. J. MAYO. Collected by Fredrick A. Willius, M.D. 109 pages. Illus. Price $2.75, cloth. Springfield, Illinois: Charles C Thomas, 1951.

ANTIBIOTIC THERAPY. Henry Welch, Ph.D., Director, Division of Antibiotics, Food and Drug Administration, Federal Security Agency of United States Government; and Charles N. Lewis, M.D., Medical Officer, Division of Antibiotics, Food and Drug Administration, Federal Security Agency of United States Government; foreword by Chester S. Keefer, M.D., Wade Professor of Medicine, Boston University School of Medicine, Chairman, Committee on Medicine, and Chairman, Committee on Chemotherapy of the National Research Council. 562 pages. Illus. Price $10.00, cloth. Washington, D. C.; The Arundel Press, 1951.

THE TEMPOROMANDIBULAR JOINT. Bernard G. Sarnat, M.S., M.D., D.D.S., F.A.C.S. Professor and Head of Department of Oral and Maxillofacial Surgery, College of Dentistry, Clinical Assistant Professor, Department of Surgery (Plastic Surgery), College of Medicine, University of Illinois, Chicago; Diplomate of the American Board of Plastic Surgery. 148 pages. Illus. Price $4.75, cloth.

PENICILLIN DECADE, 1941-1951. Lawrence Weld Smith, M.D. Medical Director Commercial Solvents Corporation; and Ann Dolan Walker, R.N., former editor "Trained Nurse and Hospital Review." 122 pages. Price $2.50, cloth. Washington, D. C.: The Arundel Press, 1951.

UNTOWARD REACTIONS OF CORTISONE AND ACTH. Vincent J. Derbes, M.D., F.A.C.P. Associate Professor of Medicine, Tulane University of Louisiana School of Medicine; Head of Department of Allergy, Ochsner Clinic; Visiting Physician Charity Hospital of Louisiana at New Orleans, and Staff Member, Foundation Hospital, New Orleans; and Thomas E. Weiss, M.D., Instructor in Medicine, Tulane University of Louisiana School of Medicine; Member of Department of Medicine, Ochsner Clinic; Visiting Physician Charity Hospital of Louisiana at New Orleans and Staff Member Foundation Hospital, New Orleans. 77 pages. Price $2.25, flexible binding. Springfield, Illinois: Charles C Thomas, 1951.

DIABETES CONTROL. By Edward L. Bortz, M.D., Associate Professor of Medicine, University of Pennsylvania; Past President, American Medical Association. 264 pages. Price $3.50. Philadelphia: Lea and Febiger, 1951.

This is a manual written primarily for the diabetic patient. The first few chapters are devoted to improving morale of the diabetic patient as well as general instructions. The chapter on care of the feet is exceptionally good. A long chapter on meal planning makes use of

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the food exchange lists as adopted by the Committees of the American Diabetes Association and the American Dietetic Association. This new information gives to the patient a much wider choice of foods and an easier method of computing his diet. This new system has been adopted by the dietetic departments of many hospitals. This chapter alone is worth the price of the book.

The chapter on insulin covers N.P.H. insulin and the new insulin syringes. A chapter on weight control is valuable to the obese, whether diabetic or not.

The last chapter is a list of questions and answers.

It covers all phases of diabetes in simple language printed in easily read type on fine paper.

It is a valuable book for the diabetic patients, especially those who have received instructions from dieticians who are using the new food "exchange" system. It is a worthwhile addition to a physician's library.

Lloyd L. Merriman, M.D.

LOW-SODIUM DIET. A MANUAL FOR THE PATIENT. By Thurman B. Rice, A.M., M.D. Professor of Public Health, Indiana University School of Medicine, Indianapolis, Indiana. 103 Pages, 14 Food Charts. Price $2.75. Philadelphia: Lea & Febiger, 1951.

The low sodium diet, as such, is mighty difficult to follow due to its extreme unpalatability and limitations. As a result, the average person when confronted with the prospect of having to follow this extremely restricted diet many times will think, "Well, what's the use?"

The information which is given in Dr. Rice's book is particularly aimed at the average person with an average amount of knowledge and understanding. He tells why sodium is important in the diet, where it can be found, which foods to eat, and which to omit. There is one chapter on possible ways of varying the diet and relieving the monotony, and the problem of "eating out." He discusses foods that have hidden sodium in them due to processing. There are several chapters on actual samples of low-sodium diets and food charts indicating sodium content, et cetera.

In general, this book can be considered a good valid source of information. It explains in greater detail than the doctor or dietitian can take time to explain the important aspects of this particular modified diet.

Adeline V. Paulson

STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS, Fourth Edition. American Medical Association. 1034 pages. Price $8.00. Philadelphia: Blakiston Co., 1952.

On January 2, 1952, the American Medical Association made available to hospitals the new fourth edition of Standard Nomenclature of Diseases and Operations.

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Revision of this useful book has been under way intensively for the past three years starting with the decision to revise made at the Fifth National Conference on Medical Nomenclature held at the Association Headquarters office in June, 1948. Revision of the book was carried out by the editors under the general supervision of an Editorial Advisory Board and in collaboration with twenty-four committees representing each of the individual or specialty sections of the book.

Since its inception under the auspices of the New York Academy of Medicine, and the First National Conference on Medical Nomenclature in 1928, and the subsequent transferral of responsibility for its periodic revision to the American Medical Association in 1937, the "Standard Nomenclature" has grown rapidly to become the standard, and thereby the most acceptable system for the diagnostic coding of hospital records for more than seventy per cent of U. S. Hospitals. Although the dual topographic-etiologic coding system is not uncomplicated, it has many times over demonstrated its flexibility both through ease of simplification for the

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small hospital, and in ready expansibility for the large teaching and research hospital.

Because of the wide acceptance of this coding system, and the fact that hospital record systems using "Standard" must make the changes provided for in each revision, the editors of the Fourth Edition have made every effort to avoid changes that are not strictly required. Nevertheless, the rapidly expanding scientific knowledge in many fields in recent years has required a considerable number of changes in several sections of the book. These have included a complete revision of the Psychobiologic section to bring it into accord with accepted diagnostic terminology of the American Psychiatric Association, a complete revision of the diseases of the Hemic and Lymphatic section to accord with newer thought in this field, and a complete revision of the section on tumor etiology. Changes in the nomenclature and coding of tumors comes about as a result of the deliberations of the "Standard" Committee on Oncology with similar committees of the American Cancer Society, the National Research Council, the U. S. National Committee on Health and Vital Statistics, American Society of Clinical Pathologists, Armed Forces Institute of Pathology, U. S. Public Health Service and others, all of whom have adopted the new nomenclature.

For purposes of a closer identification of two systems, the Fourth Edition of Standard has included an appendix cross reference of "Standard" code numbers to code numbers of the "International Statistical Classification of Diseases, Injuries and Causes of Death." The "International" code numbers have also been included parenthetically in the Nomenclature section of the book. The main purpose of this has been to simplify the work of hospitals who do, or may wish to, participate in or contribute toward large-scale state, nation, or world statistical studies of disease incidence. It must be emphasized, however, that for purposes of hospital recording, the systems are by no means interchangeable. The "Standard" system, as a clinical system, is necessary for the proper separation of individual differences in diseases for recording and research purposes, whereas the "International" system applies mainly to much broader disease groupings for statistical purposes. Thus, one code number in the International list may be used to represent twenty or more conditions classified and coded separately in the "Standard Nomenclature."

In view of the fact that the "International List" is now accepted on a world basis for statistical analyses by the countries participating in the World Health Organization, and the fact that the cross coding to "Standard" has been a tremendously detailed and time-consuming work, it seems pertinent to now suggest that the combined systems, clinical and statistical, may be an appropriate consideration for the World Medical Association for sponsorship or adoption in either the present or next succeeding revision.

Unquestionably, the adoption of "Standard" in the hospitals of this country not now using it can be an effective and needed move toward the unity inherent in calling the same things by the same names.

RICHARD J. PLUNKETT, M.D.

MEDICAL TERMINOLOGY MADE EASY. Je-Harned, R.N., R.R.L., Instructor in Medical Record Library Science and Medical Record Librarian, Duke University School of Medicine and Hospital, Durham, N. C. 275 pages. Price $5.00. Chicago: Physicians' Record Company, 1951.

Written by a person well qualified for the task, this book is primarily an easy-to-read textbook on medical terminology, with special emphasis on the jargon used by physicians and nurses in their speech and in writing hospital records. As the author states, it is not a substitute for a medical dictionary but is intended to introduce beginners in various types of medical work to the specialized language used in the field of medicine. The book is aimed mainly at hospital administrators, pre-

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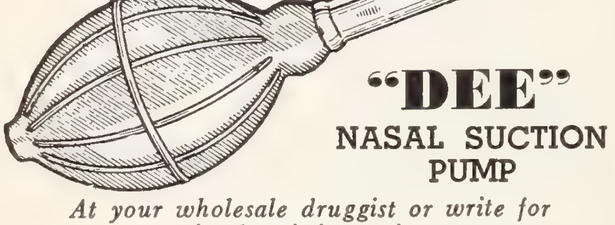

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Every profession or trade, the author points out, has its jargon, which, strange as it may sound to outsiders, is actually, in its own field, "more precise and less liable to errors of interpretation than ordinary English." This, of course, is because a jargon word is coined for a specific thing or act existing or done only under certain circumstances.

In this book, after a general discussion of the subject, the author plunges into an explanation and listing of medical prefixes and pseudo-prefixes, suffixes and pseudo-suffixes, and word stems, in each case giving an example of correct usage. Although etymology can often be dull, except to enthusiasts in the field, the author manages to make these sections of her book not only clear but interesting.

Following this, there is a chapter consisting of selected medical words and phrases (with definitions), based upon the various anatomical systems. Named are the anatomical parts of each system and diseases and pathologic conditions of each system.

The next chapter consists of an alphabetical list of terms commonly used in medical case records. With each word is a brief definition as well as an example of correct usage in a sentence.

There is also an excellent chapter on abbreviations and symbols, which, the author naturally emphasizes, are very important because of the time and space they save in the preparing of medical records and hospital charts. Because of the fact that many abbreviations are purely "local" ones and not in general use, the author divides the abbreviations into three categories and indicates which ones (1) are found in textbooks and dictionaries, (2) are in general use and might be approved in the future, (3) are not approved and are used only in certain locales.

An extremely thorough index completes the book.

All in all, although this book would be of little value to most physicians, it is well suited for those persons (named above) for whom it is intended. In addition, it would make an ideal and practical gift for a physician to present to a son or daughter who is planning to enter either the medical or nursing professions.

—J.H.L.

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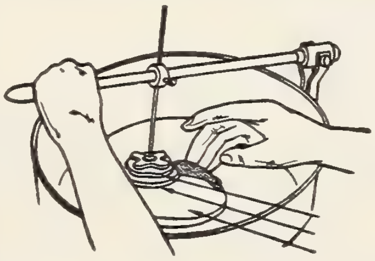

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METABOLISM

Beginning publication in January, 1952, a new journal will appear bi-monthly under the title of *Metabolism, Clinical and Experimental.* Dr. Samuel Soskin, Director of the Medical Research Institute at the Michael Reese Hospital, Chicago; Dean of the Michael Reese Hospital Postgraduate School, and Associate Professor of Medicine at the Northwestern University Medical School, is Editor-in-Chief. Dr. Fuller Albright, Associate Professor of Medicine at the Harvard Medical School, Boston, has the title of Consulting Editor.

Among the sixteen Associate Editors are Dr. Ancel Keys and Dr. Irvine McQuarrie of the University of Minnesota.

The new journal promises to be rather broad in scope, presenting material both clinical and experimental in nature and providing articles of interest to the general practitioner as well as the specialist and research worker.

Metabolism will contain original articles, abstracts of current literature, editorial discussion, book reviews, clinical reports of a summary or review nature and case reports.

Subscription price is $9.00, payable to the publisher, Grune and Stratton, Inc., 381 Fourth Avenue, New York 16, New York.

DIABETES

A new journal, *Diabetes,* the journal of the American Diabetes Association, will appear bimonthly, beginning with the January-February, 1952, issue. It will be devoted to clinical and research reports on diabetes and related aspects of medicine. It will replace the association's annual proceedings and its quarterly *Diabetes Abstracts,* which have been published for the past ten years.

Diabetes will be edited by Dr. Frank N. Allan of the Lahey Clinic, Boston, with the assistance of an editorial board headed by Dr. Charles H. Best of the University of Toronto.

Members of the association will receive *Diabetes* free. The subscription rate for non-members will be $9 per year. The editorial office is Diabetes, American Diabetes Association, Inc., 11 W. 42nd Street, New York 18, N. Y.

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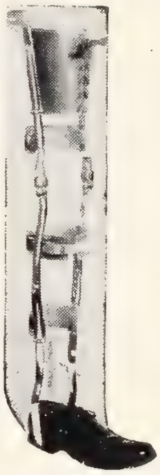

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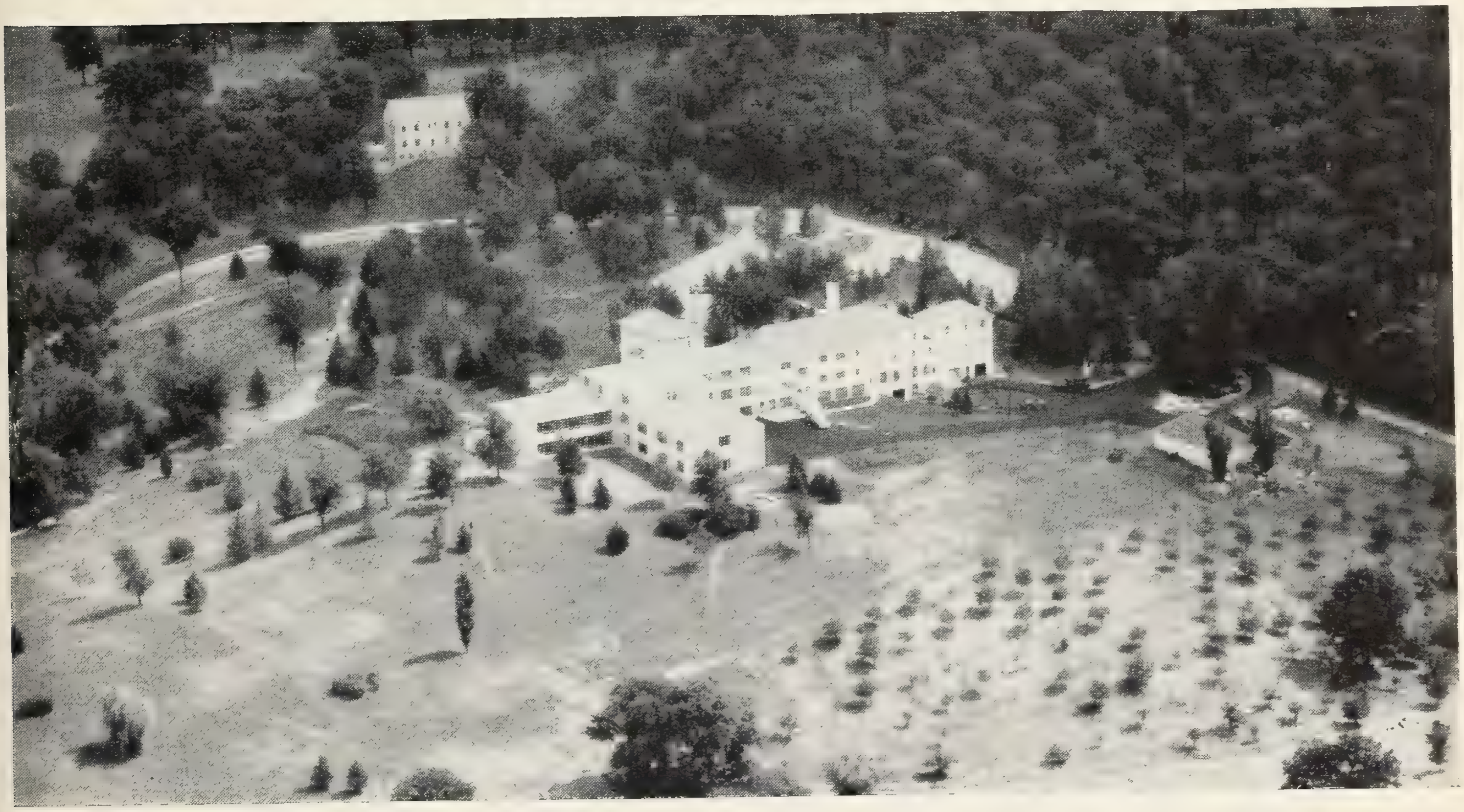

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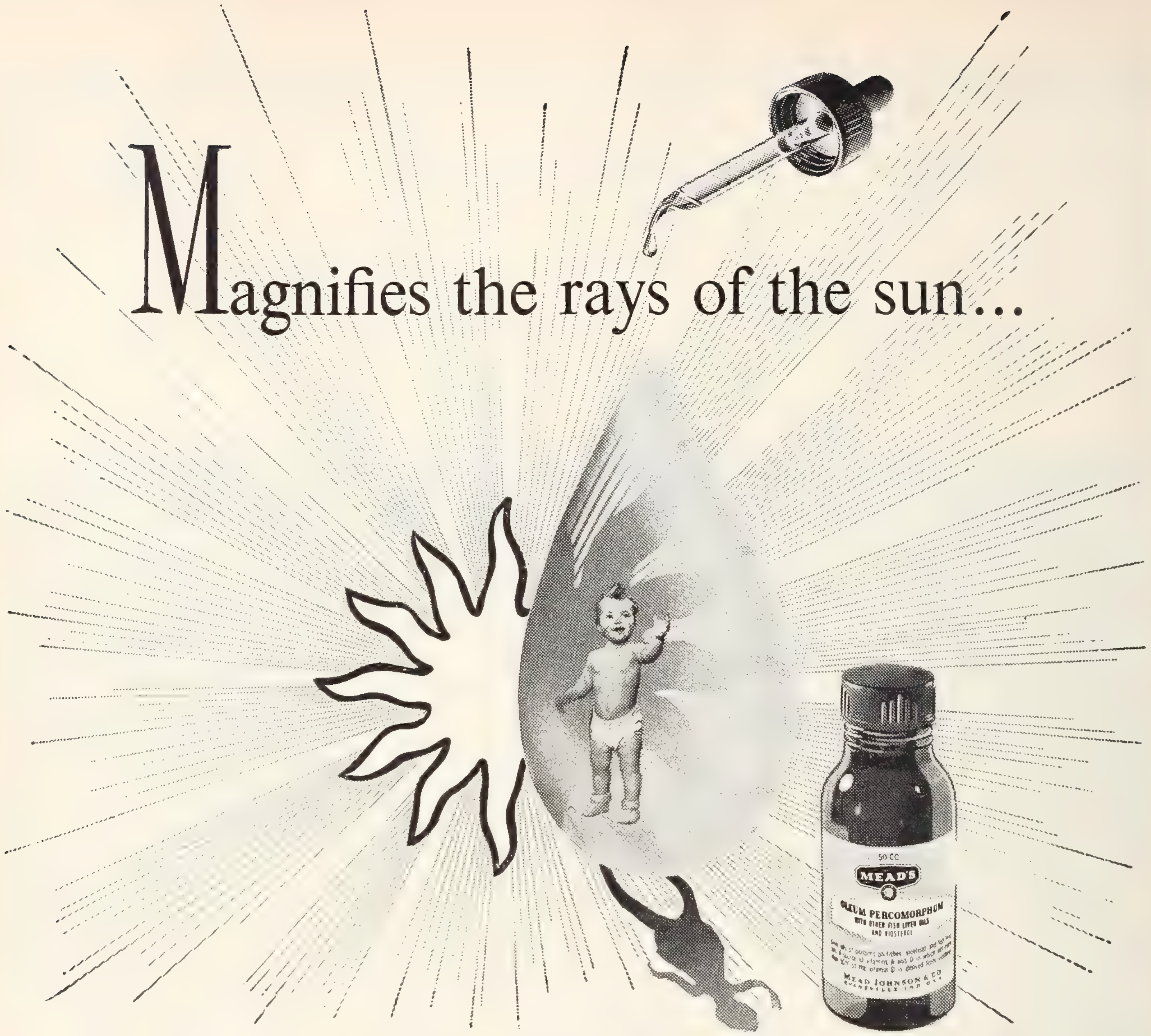
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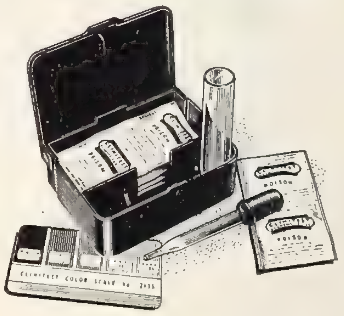

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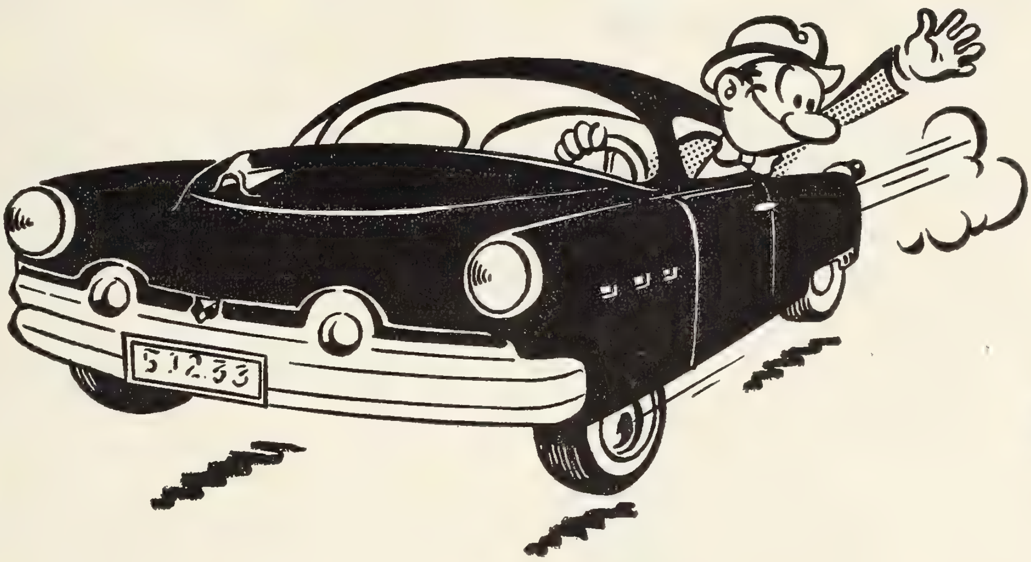

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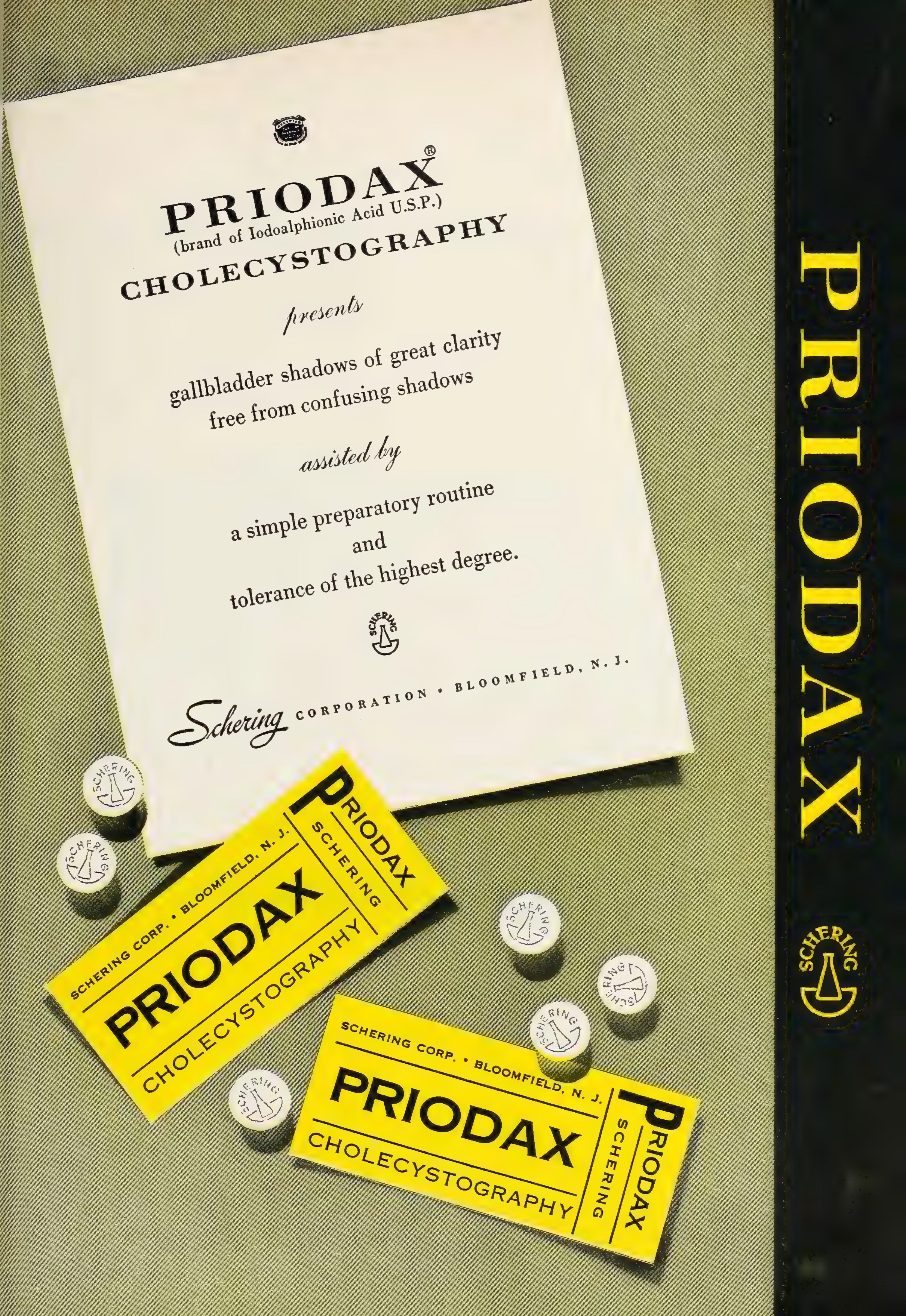

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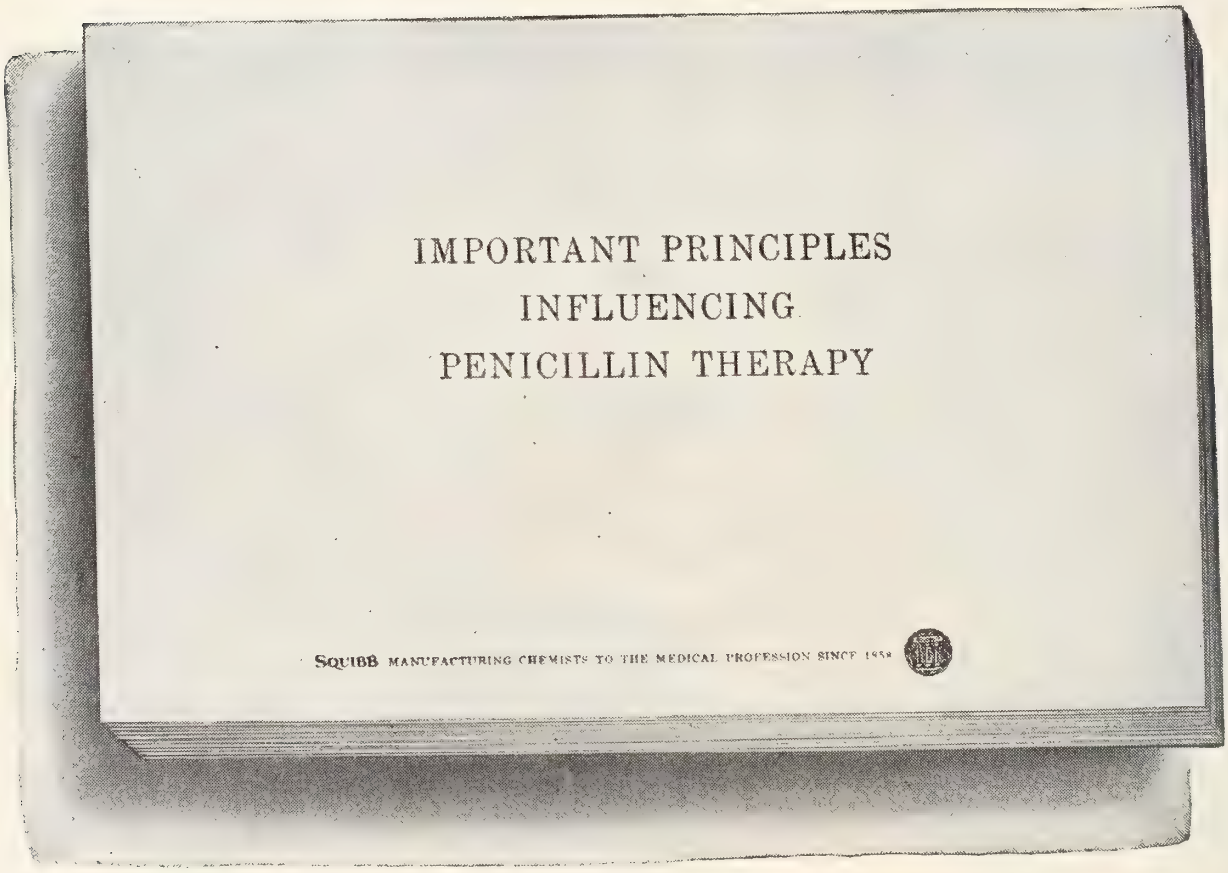
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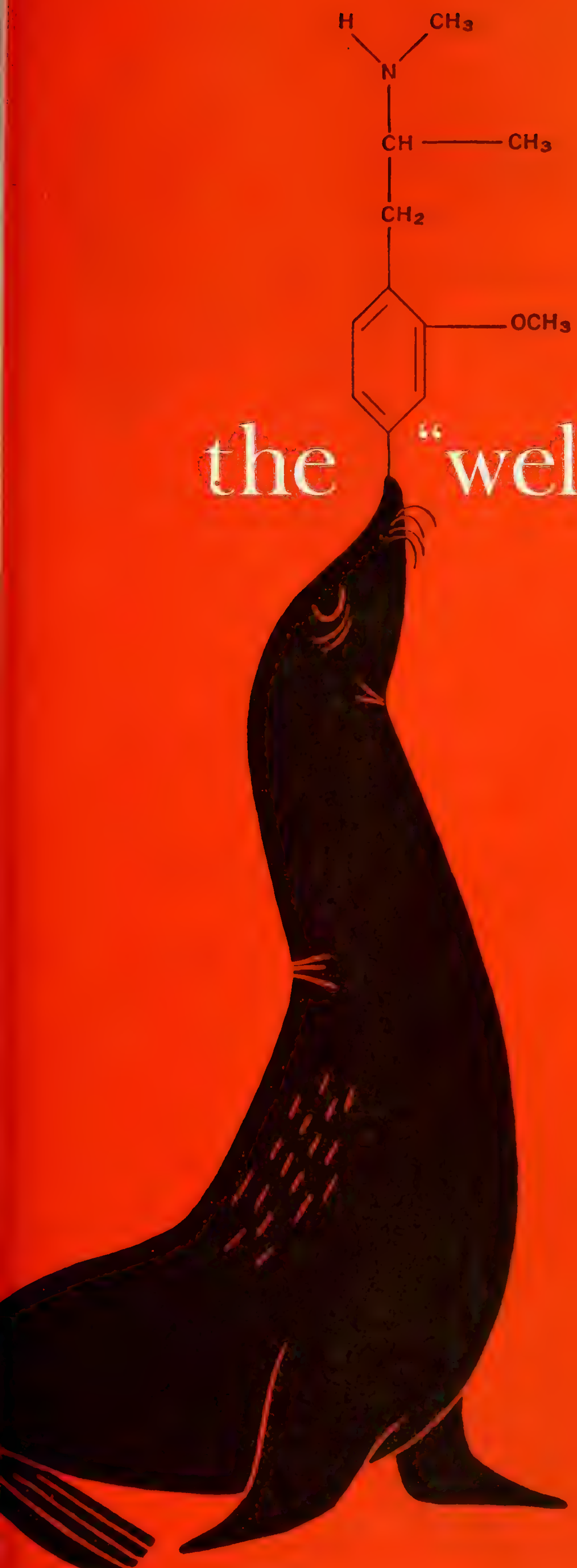

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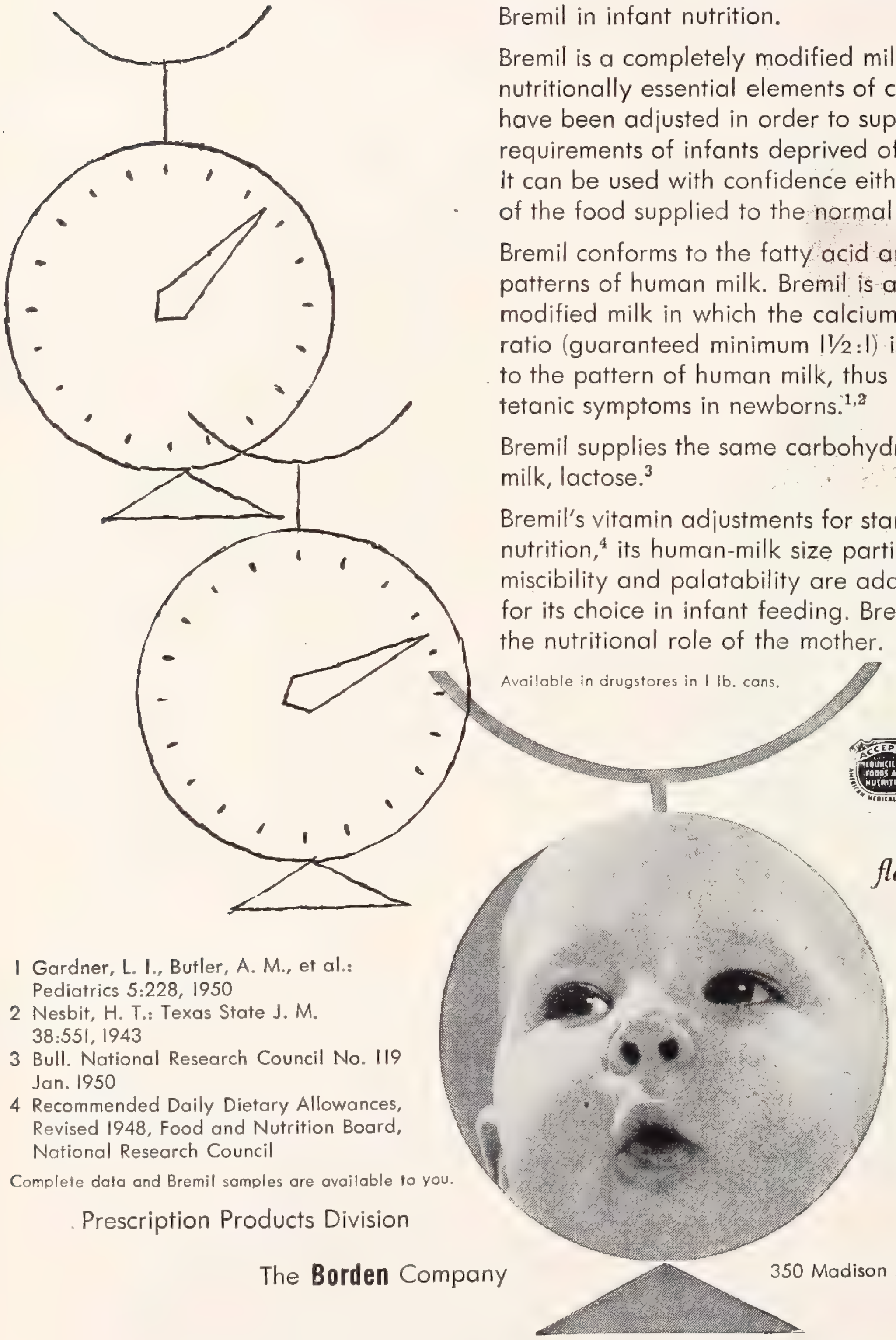

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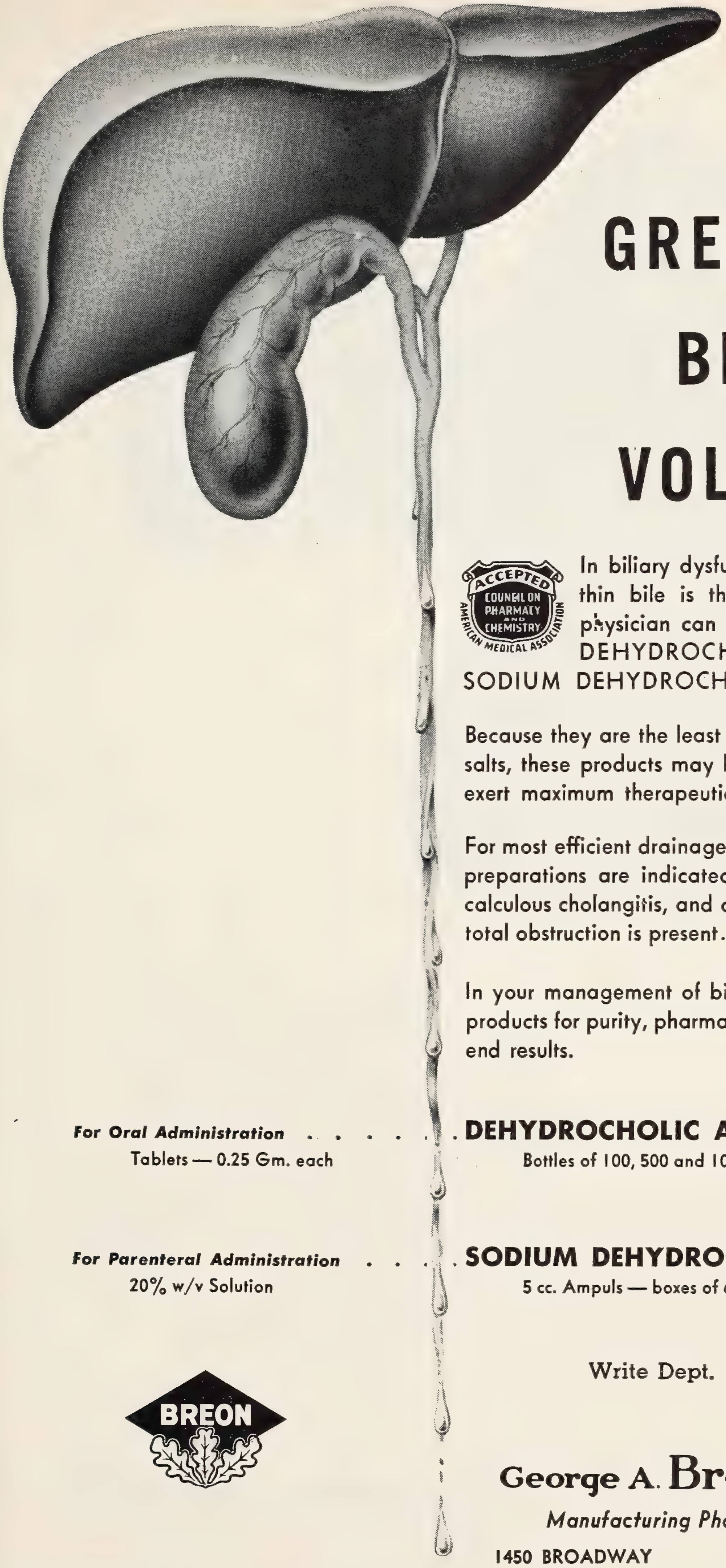

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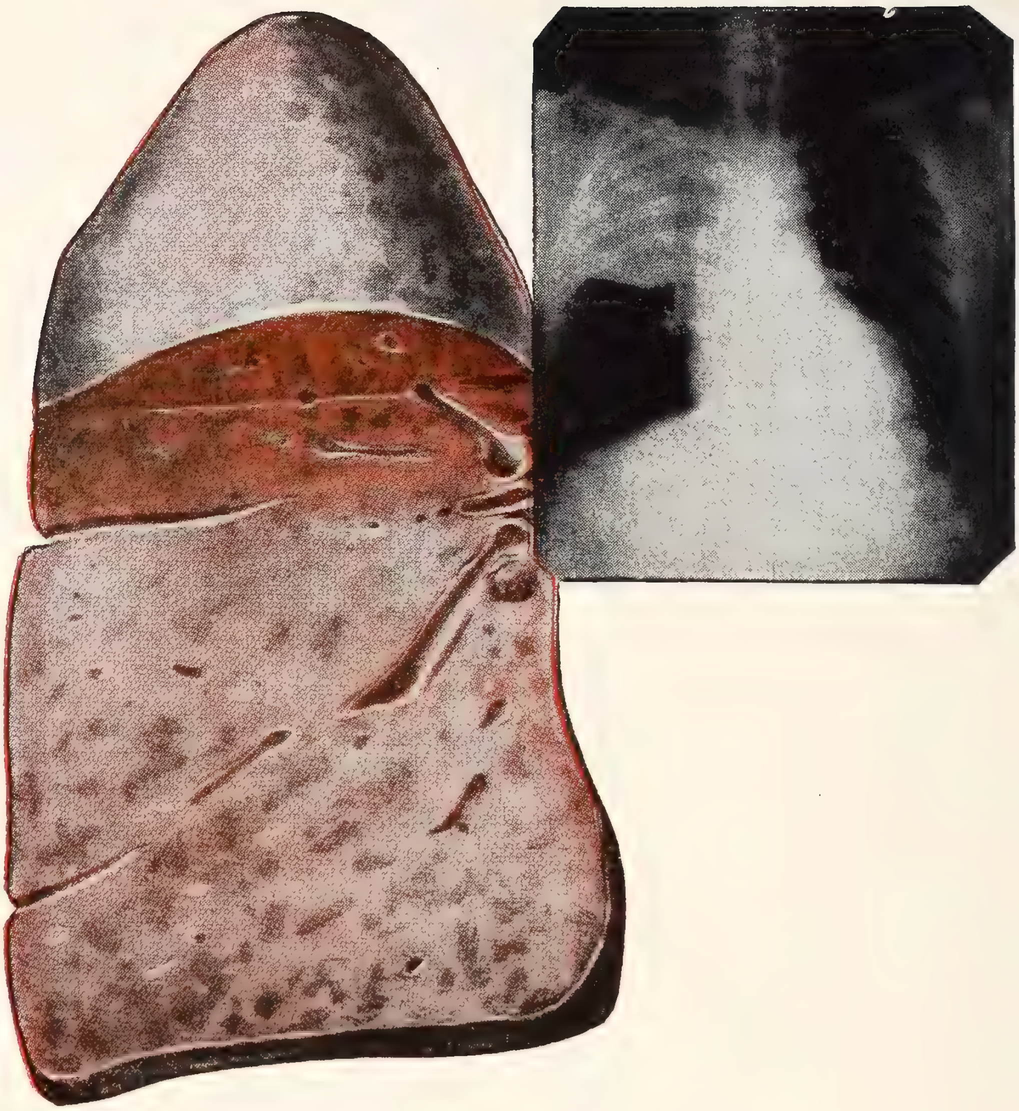

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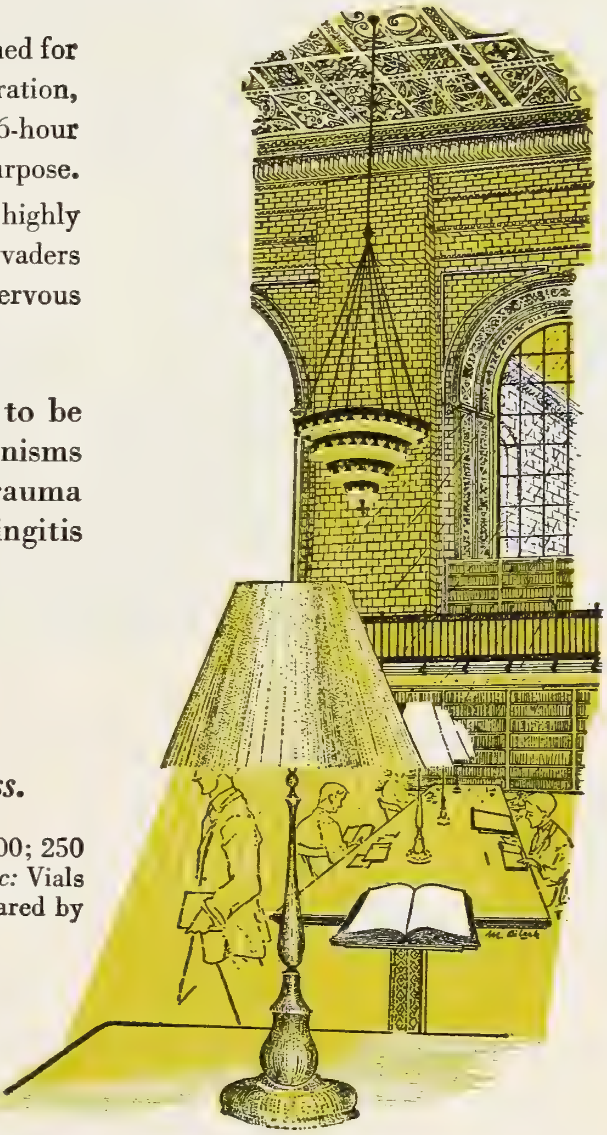

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Norcross, B. M., *N. Y. State J. Med.* **51: 2356,** Oct. 15, 1951.

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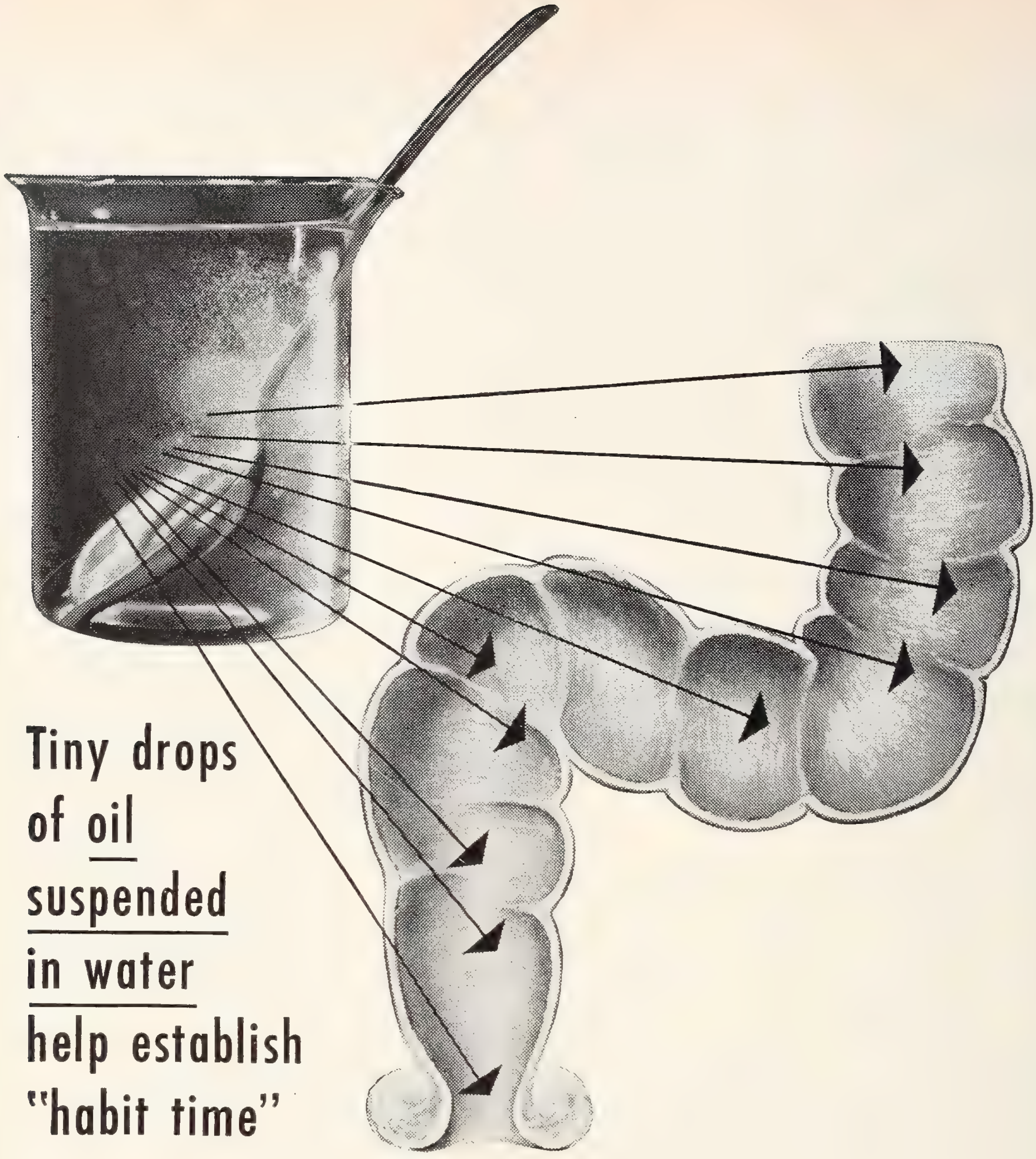
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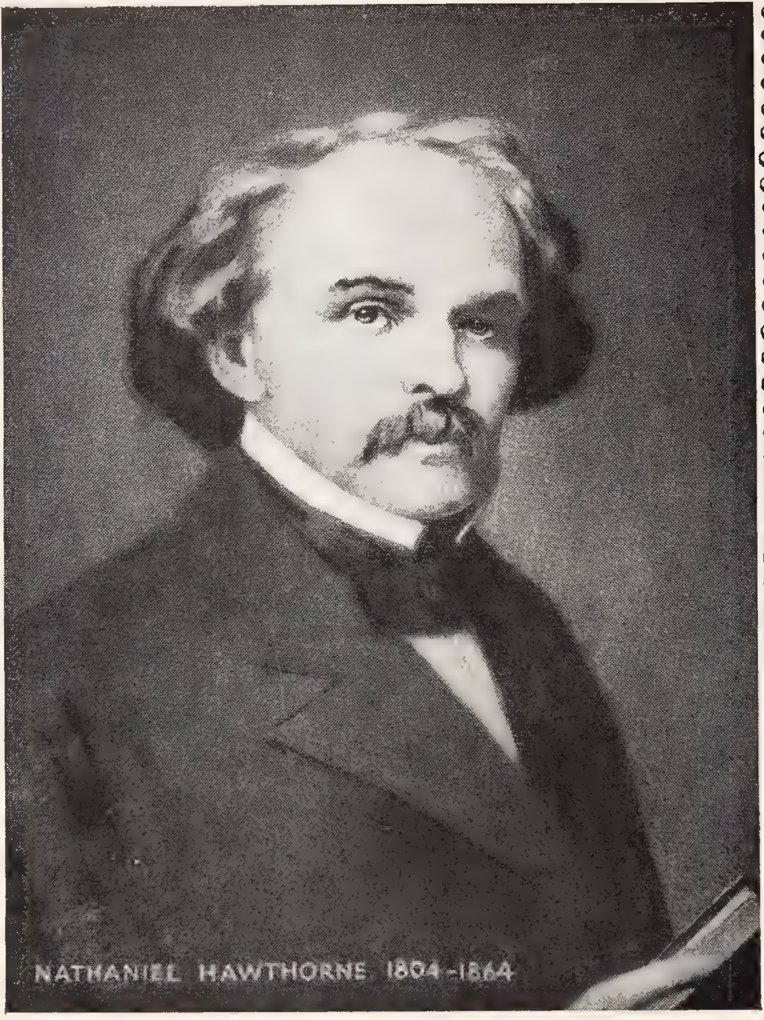

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Volume 35 **February, 1952** **Number 2**

SOME OBSERVATIONS ON THE RECOGNITION AND TREATMENT OF THE COMMONER FORMS OF HEPATIC CIRRHOSIS

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Minneapolis, Minnesota

I FEEL gratified and deeply honored to have been invited to give the Henry Sewall Lecture for 1951. This has afforded a rewarding opportunity to gain some insight into the life work and character of a genuine scientist and teacher who played such an outstanding role in elevating the plane of medical education and research in Colorado. I am indebted to Dr. Waring for providing me with reminiscences and biographical information about Dr. Sewall. Not being well versed in the history of immunology, I was not previously aware that his discovery of antitoxin against snake venom antedated v. Behring's report of the preparation of diphtheria antitoxin. Recognition of this pioneer work was both inadequate and tardy, but in 1931 Dr. Sewall was awarded the Trudeau Medal of the National Tuberculosis Association, and in the same year the Kober Medal of the Association of American Physicians.

The recipients of this lectureship in previous years have set a high standard, and I feel genuine trepidation in seeking to follow them, and especially in attempting to do so through the medium of a topic as confusing as cirrhosis of the liver. There is little uniformity or general understanding as to the terminology and classification of the various forms of hepatic cirrhosis. This can be ascribed at least in part to two factors: (1) the loose and variable manner in which the term Laennec's cirrhosis is employed, and (2) the oft expressed concept that "there is but one cirrhosis." Many employ the term Laennec's cirrhosis interchangeably with portal cirrhosis, whether the liver be large or small, fatty or nonfatty and regardless of other characteristics. Laennec[37] really gave us little to go on except the bare statement that the liver is small and yellow. A more detailed description of what was undoubtedly the same disease had been given earlier by Matthew Baillie,[3] but unfortunately he used the poor and confusing name of "common tubercle." Despite the extensive studies of the cirrhosis problem by Mallory[41] and his emphasis on the fundamental distinction of certain forms, the idea of an essential unity of the cirrhoses gained many adherents. Only in the past decade has the pendulum been swinging in the opposite direction. One of the most important factors in this change was the study by many investigators of the transition of fatty liver to fatty cirrhosis,[10,11,12,21,47] both in man and animals. It has now become reasonably clear that the various forms of cirrhosis of the liver are perhaps the best divided into two main groups: those in which a fatty liver is an important primary feature of the disease, and those in which the cirrhotic liver is not fatty at any stage in its development. A suggested classification of cirrhosis along these two lines is given in Table I.

Several comments are needed with respect to the classification suggested in Table I. In certain instances it is not possible at the time of biopsy or necropsy to be certain that the cirrhosis was primarily fatty even though the history may strongly suggest this. The fat may have been

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From the Department of Medicine, University of Minnesota Medical School and Hospitals. Aided by a contract from the Surgeon General's Office, U. S. Army, under sponsorship of the Commission on Liver Disease, Armed Forces Epidemiological Board.

The Henry Sewall Lecture presented on February 6, 1951, at the University of Colorado Medical School, Denver, Colorado.

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TABLE I. SUGGESTED CLASSIFICATION OF HEPATIC CIRRHOSIS

- I. Primarily fatty in pathogenesis
  - A. Dietary deficiency ("Kwashiorkor")
  - B. Chronic alcoholism and dietary deficiency—*Laennec type*
  - C. Toxic fatty liver (arsenic, CCl_4, phosphorus, certain systemic infections)
  - D. Diabetic fatty liver
- II. Primarily non-fatty in pathogenesis
  - A. Viral or idiopathic
    - 1. Post-necrotic (toxic or coarsely nodular; healed acute atrophy)
    - 2. Diffuse portal (chronic hepatitis with fibrosis, mainly portal)
      - a. With hepatocellular impairment
      - b. Cholangiolitic (primary biliary; Hanot)
    - 3. Transitions and mixtures
  - B. Parasitic—Schistosomiasis
  - C. Syphilitic—probably only hepar lobatum
  - D. Brucellosis (?)
  - E. Obstructive biliary (cholostatic and cholangitic)
  - F. Metabolic error
    - 1. Hemochromatosis ("pigmentary" cirrhosis)
    - 2. Wilson's disease }
    - 3. Fanconi's syndrome } amino-aciduria
    - 4. Porphyria hepatica
  - G. Cardiac (central necrosis and fibrosis resulting from long standing chronic passive congestion)

largely removed by lipotropic substances, either a high protein diet or lipotropic substances such as choline, or methionine given over a considerable period prior to the histological study.

As noted in Table I, the relation of brucellosis to hepatic cirrhosis is questionable. There is much reason to believe it is at times causative.

The existence of a true cardiac cirrhosis is controversial.[40] In the autopsy material at the University of Minnesota, McCartney[45] was unable to find a single instance that met the criteria for a central, cardiac cirrhosis. A number of other investigators, however, have emphasized the occurrence of a central fibrosis in cases of longstanding passive congestion.[28,32,59]

I wish to consider certain of the more important clinical and laboratory features as well as the problems of treatment of the two forms of cirrhosis which are by far the most significant in the United States. The first and undoubtedly the most common is that for which, if it is to be used at all, the designation of Laennec's cirrhosis ought to be reserved. This is the primarily fatty cirrhosis most commonly encountered in the chronic alcoholic. The other type which I wish to consider is the primarily non-fatty cirrhosis which occurs as an idiopathic disease or as a sequel to infectious (viral) hepatitis.

At the present time at least, the distinction of these two most common forms is of considerable importance from the standpoint of prognosis and treatment. It may be emphasized that they are not observed in a constant ratio from one hospital to the next. In the large municipal hospitals in this country where the problem of alcoholism is encountered with the greatest frequency, the proportion of cases of so-called "alcoholic" (Laennec's) cirrhosis is much higher than in hospitals drawing material on a referral basis from a rural population.[25] In the material of this latter type which is characteristic of what we have at the University of Minnesota Hospital, cirrhosis in non-alcoholic individuals is relatively much more common, and in this group the incidence of previous jaundice and the history of infectious hepatitis has been significantly higher than in the control group.[25] The cirrhosis in these cases was consistently non-fatty, both early and late. In many instances the onset of the disease appeared to be of the nature of a sporadic hepatitis. This has been distinctly more common in women, and we have seen as many or more cases in young women as in those at or beyond the menopause. Ahrens and co-workers[35] have recently studied a group of cases in young women, characterized by arthralgia and hyperglobulinemia, in addition to other, ordinary characteristics of cirrhosis. In our own experience these features do not adequately delineate an independent form of the disease, as arthralgia is encountered with a fair degree of frequency in acute and chronic hepatitis as well as cirrhosis; and hyperglobulinemia of marked degree may be encountered in men and in older as well as younger women. We have been impressed, however, with the frequency of occurrence of non-fatty cirrhosis in young women. In a number of instances endocrine disturbances, either menstrual or secondary sexual, have been present for considerable periods prior to the first episode of apparent hepatitis. This, together with the sex incidence, suggests that endocrine disturbances may make the liver more vulnerable to attack. Matteini[44] has recently called attention to the high incidence of clinical and functional hepatic disturbances in women with menstrual irregularities and believes that the latter precede, rather than follow, the former.

In some of our cases the manifestations of cirrhosis have first appeared at varying intervals after an attack of epidemic hepatitis. Homologous serum jaundice was believed to be the starting point in a number of instances. In quite a few the onset was insidious without clear-cut evidence of an acute hepatitis. We have not seen any case of cirrhosis in which it appeared that infectious mononucleosis was causal, though recent reports have indicated this possibility.[39,49]

The question of relationship of viral hepatitis to diffuse cirrhosis is controversial, and it would lead me too far astray to consider the matter in any detail. It is my opinion, based on personal experience and various studies reported in the literature, that the relationship is reasonably well established, but it is quite clear that such a development is limited to a vary small fraction of the entire mass of cases of infectious hepatitis.

One gains the impression from much of the literature on cirrhosis[27] that the distinction between the so-called "post-necrotic" ("healed acute atrophy" or "toxic nodular") cirrhosis on the one hand and diffuse portal cirrhosis on the other is always sharp and distinct. While it is undoubtedly true that the extremes are usually distinguished accurately, it has been our experience that the border line between the forms included in the viral or idiopathic, non-fatty category of the above classification is often not clear-cut, and, as indicated, mixtures and transitions are observed. This is not surprising when one reflects that there are two important factors influencing the development of a more diffuse rather than a more irregular coarsely nodular type. These are (1) the occurrence in many, if not all, cases of infectious hepatitis, of small foci of necrosis, widely disseminated throughout the liver parenchyma, [2,42] and (2) the occurrence of chronic hepatitis, characterized by a persistent or recurrent inflammatory process throughout the liver with particular involvement of the portal spaces. [5,33,34,54,58,63] Our own experience indicates that while there are many clear-cut examples of coarsely nodular ("post-necrotic") as contrasted with a diffuse and more finely nodular cirrhosis, at the extremes of this large group, there are many and various instances between these extremes representing the interplay and persistence of these factors in varying degree. The earlier, excellent monograph of Bergstrand[6] clearly illustrates transitions between these infectious cirrhoses.

The more diffuse and the more prominent the portal fibrosis, the more likely that the term Laennec will be used in designation, even though it may be clear that the cirrhosis was primarily non-fatty, non-alcoholic and non-dietary in character. This is exemplified in a report by Bjorneboe and Raaschou[8] relating to the distinction of post-necrotic and "Laennec's cirrhosis." Here it is interesting to note that but 8 per cent of the latter were classified as alcoholics, that the cirrhosis was usually not fatty in type, and that difficulty was encountered in distinguishing post-necrotic from diffuse cirrhosis in some instances. One in particular was coarsely nodular in one area and finely nodular (diffuse portal fibrosis) in another. The great majority of cases included in this study followed upon an attack of hepatitis of unknown etiology.

There is a further important point indicating that some cases designated as "post-necrotic" represent more than a single attack of limited duration followed by a relatively static condition in which the necrotic areas are represented by large scars and regenerative nodules. This is the fact that the disease may be quite obviously *progressive* in character after a relatively mild initial attack, i.e., one without coma or the usual signs of acute or subacute atrophy.

The "cholangiolitic" type is one in which there is no evidence of necrosis, relatively little or no evidence of hepatocellular functional impairment for long periods, but only a chronic inflammatory process restricted to the portal areas and exhibiting the development of pericholangiolar fibrosis.[46,63] The clinical picture of this disease is identical with that described by Hanot.[22] The term "primary biliary cirrhosis" is often employed.[1] The designation "cholangiolitic" was first suggested by the pathologist Rössle,[56] and as indicated elsewhere[62,63] we have used the term more in a functional than in a histological sense, to represent the physiologic evidence of cholangiolar injury and regurgitation of elements of the bile into the blood. The term is also useful in indicating the probable restriction of the injury, at least during a certain stage in any given case, to the cholangiolar or intrahepatic bile canalicular system, with relative normality of the polygonal cells themselves. There is little doubt that cholangiolar injury is often just as severe or even more severe in many cases of hepatitis or cirrhosis in which liver cell function is also seriously impaired. Furthermore, there are many cases which, over a considerable period of time, exhibit only cholangiolitic phenomena, but after months or years gradually develop more and more hepatocellular functional impairment. This transition, in cases which for long periods have presented as a pure cholangiolitic cirrhosis, to one of more ordinary type with severe hepatic insufficiency, has been observed in a number of instances. Nevertheless, there are a significant number of cases of the cholangiolitic type in which liver cell function remains relatively undisturbed for long periods of time. It is particularly in this group that great difficulty is encountered in diagnosis, since laboratory aids in the distinction of extrahepatic from intrahepatic causes of jaundice depend mainly on tests of hepatocellular function. This difficulty will be considered again in the following. Ahrens and co-workers[1] have recently stated that none of their cases of primary biliary cirrhosis appeared to be related causally to infectious hepatitis. Yet one of the most remarkable of our own cases in this group gave a history of attacks of jaundice in the family and amongst the neighbors, thirty-three years earlier. At that time both the patient and her sister were in bed with fever and jaundice. The sister recovered completely, but the patient persisted in having intermittent or recurrent jaundice, at times with fever and abdominal pain, up to the period of her study here at age forty-eight. Because of fever, occasional chills and pain simulating gallstone colic, she had been operated on nine years earlier at which time a normal common duct was found. Liver biopsy then revealed a chronic hepatitis with mild portal fibrosis. Nine years later portal cirrhosis was well established, and the patient died of hematemesis from esophageal varices. This case has been reported in detail elsewhere.[63]

Certain important *clinical features* may now be considered with relation to the two principal forms: (1) the primarily fatty "alcoholic" or Laennec cirrhosis, and (2) the non-fatty viral or idiopathic cirrhosis.

In this country the history of outspoken alcoholism is usually evident in the Laennec or primarily fatty type. A history of viral hepatitis or of circumstances suggestive of it may be elicited in the primarily non-fatty group. It is important to seek carefully for an attack of jaundice coming on from two to four months after parenteral injection of any material that might conceivably contain or be contaminated with human blood serum; or, in fact, of needle puncture for blood tests of one type or another. In some instances the story of subacute diffuse necrosis of the liver with a very severe illness, and perhaps with a period of coma, is easy to elicit. After this attack the patient may have a relatively static hepatic insufficiency which permits some degree of activity but is easily demonstrable by physical and laboratory methods. In others the initial attack may be relatively mild without indication of any considerable degree of necrosis. The history of appearance of jaundice from two to four months after cholecystectomy or common duct surgery should lead one to inquire carefully as to the possibility of homologous serum hepatitis-cirrhosis. The natural assumption in such cases is that of a common duct stone or stricture, and if operation is carried out when the patient in reality is suffering from a diffuse hepatitis or cirrhosis, the result may be disastrous.[61]

Physical findings alone are often inadequate to separate the two common forms of hepatic cirrhosis which we are considering. Jaundice and ascites are encountered singly or in varying combination in either form. In general, it may be said that the emphasis is on ascites in the alcoholic or primarily fatty cirrhosis, and on jaundice in the viral or non-fatty cirrhosis.

It should be emphasized that advanced cirrhosis with hepatic insufficiency may be encountered *without* jaundice.[61] I have repeatedly seen cases of fatal hepatic coma due to cirrhosis, exhibiting fetor hepaticus and other evidence of failure of liver function, without visible jaundice. This combination has been most common following a sudden large hematemesis. The latter is undoubtedly responsible for further deterioration of liver function, but quite probably, also, a throttling of hemoglobin destruction so that bilirubin formation is at a minimum.

In the cholangiolitic or Hanot type, it is characteristic, of course, to have chronic jaundice, hepatomegaly and splenomegaly, without ascites. The pruritus which is so often observed in this type is quite rare in association with fatty cirrhosis. The majority of these cases eventually exhibit xanthelasma or xanthomata. The bulk of evidence indicates that in the so-called "xanthomatous biliary cirrhosis" the xanthomata are secondary, rather than a primary cause of the disease.

In our experience such manifestations as spider nevi, loss of hair, especially from the axillae, and fetor hepaticus are about equally frequent in the two groups. The occurrence and degree of the latter phenomenon in particular is of no little aid in assaying the severity of the hepatic insufficiency. Pigmentation or melanosis of the skin distinct from jaundice or hemosiderosis, is much more commonly encountered in the primarily non-fatty group. It is, of course, even more frequent in cases of hemochromatosis. Pigmentation not due to iron is at times associated with pruritus in cases of cirrhosis without jaundice and without elevation of the serum bile acids. The significance of this association is unknown.

Certain laboratory data deserve special comment. The leukocyte formula is of some significance in separating the two main forms. Thus, in the severe fatty cirrhosis of the chronic alcoholic it is not uncommon to observe a rather marked neutrophilic leukocytosis in association with even considerable fever, and, although this finding should induce a careful search for intercurrent infection, it is often not found, even at necropsy. In some of these cases a polymorphonuclear leukocytic exudate may be quite prominent in the cirrhotic liver,[14] but in others with the same degree of peripheral leukocytosis and fever we have failed to see this. Leukocytosis is much less frequently observed in the primarily non-fatty group. In fact in our own experience it has been associated only with intercurrent infection in these cases.

In cirrhosis the fractional serum bilirubin determination is of value under two circumstances: (1) When the prompt (1′) fraction is significantly increased ($>$0.25 mg. per 100 cc.), within a normal value for total bilirubin ($<$1.5 mg. per 100 cc.), in the non-jaundiced case. This, of course, is non-specific for cirrhosis and is often observed in other hepatobiliary disease. (2) When the bilirubin ratio [66]

$$\frac{\text{Prompt direct or } 1' \times 100}{\text{Total}}$$

is less than 30 in a patient with jaundice or with a total serum bilirubin above 2.0 mg. per 100 cc., and when the condition at hand is not a primary or uncomplicated hemolytic anemia. As a matter of fact, this combination is most often encountered in patients with cirrhosis and with a hemolytic component or outspoken hemolytic anemia.

From the laboratory standpoint, cirrhosis, of course, enters prominently into the problem of differential diagnosis of jaundice. The laboratory procedures of aid in this respect depend in the main on alterations of hepatocellular function. In extrahepatic obstructive jaundice such alterations commonly are slight or absent, while in the usual case of parenchymal or hepatic jaundice, including cirrhosis, the alterations are sufficiently marked to indicate with a fair degree of certainty that the jaundice is due to a diffuse disease of the liver, rather than a mechanical obstruction in the biliary tract. The distinction is perhaps of chief importance with respect to the question of whether an operation is indicated. There is perhaps no area in medicine in which it is more desirable to avoid a mistake in this regard. General anesthesia and a formal operation on a patient with a primary diffuse disease of the liver may be followed shortly by profound hepatic insufficiency, coma, and death. On the other hand, an equally great injustice may be done by failure to operate on a patient with a common duct stone or even a carcinoma of the biliary tract. In the ordinary case of cirrhosis a careful history and physical examination with attention to some of the above details, considered together with a reasonable number of well-chosen laboratory procedures, will very often provide the right diagnosis. Mistakes are most likely to be made in that group of cases in which hepatocellular function is relatively less and cholangiolar function relatively more impaired, as in the "pure" type of cholangiolitic cirrhosis. Here the tests which we ordinarily rely upon to indicate a diffuse hepatocellular functional impairment may be entirely normal or only slightly disturbed. The cephalin cholesterol flocculation test is often negative. The thymol turbidity test may be increased even considerably, but since in these cases there is frequently a hypercholesterolemia, and since the thymol tubidity test is much more positive under these circumstances, it becomes less useful in differential diagnosis. The alkaline phosphatase is commonly elevated to a marked degree along with the hypercholesterolemia, and the serum bile acid level is usually elevated. There may be relatively little urobilinogen in the urine. Thus, one is left with the problem of relatively painless jaundice, an enlarged liver, and sometimes a palpable spleen and a liver function profile quite compatible with an extrahepatic biliary obstruction. In some cases there may be mild evidence of hepatocellular functional impairment but not sufficiently outspoken to enable one to make the distinction on this basis alone. Another confusing feature in this particular variety of cirrhosis is the occurence of the pseudo-gallstone colic with or without fever and chills.[61,63] This may simulate cholelithiasis so exactly that a distinction is impossible.

Our policy for some time has been to subject doubtful cases to a small laparotomy under local anesthesia in the region of the gall bladder. Neither opiates nor barbiturates should be given. The gross appearance of the liver is noted and a liver biopsy is taken under direct vision. If the cystic duct is patent, cholangiography is then carried out through the gall bladder, while the patient is on the table. If the common duct is visualized and not dilated, and if the contrast medium flows readily into the duodenum, nothing more is done If the common duct is dilated and there appears to be obstruction at the ampulla, the incision may be extended and a more formal exploration of the duct may be carried out under general anesthesia. We are increasingly convinced that this method has a great deal of merit in avoiding jeopardy to the patient whose jaundice is due to hepatitis or cirrhosis.* Figure 1 shows a cholangiogram obtained in this way in a case of cholangiolitic cirrhosis. The common duct is not dilated, and the contrast medium flows readily into the duodenum. Prior to this study and a liver biopsy carried out at the same time, there was a serious question in this case as to the possibility of an extra hepatic obstruction.

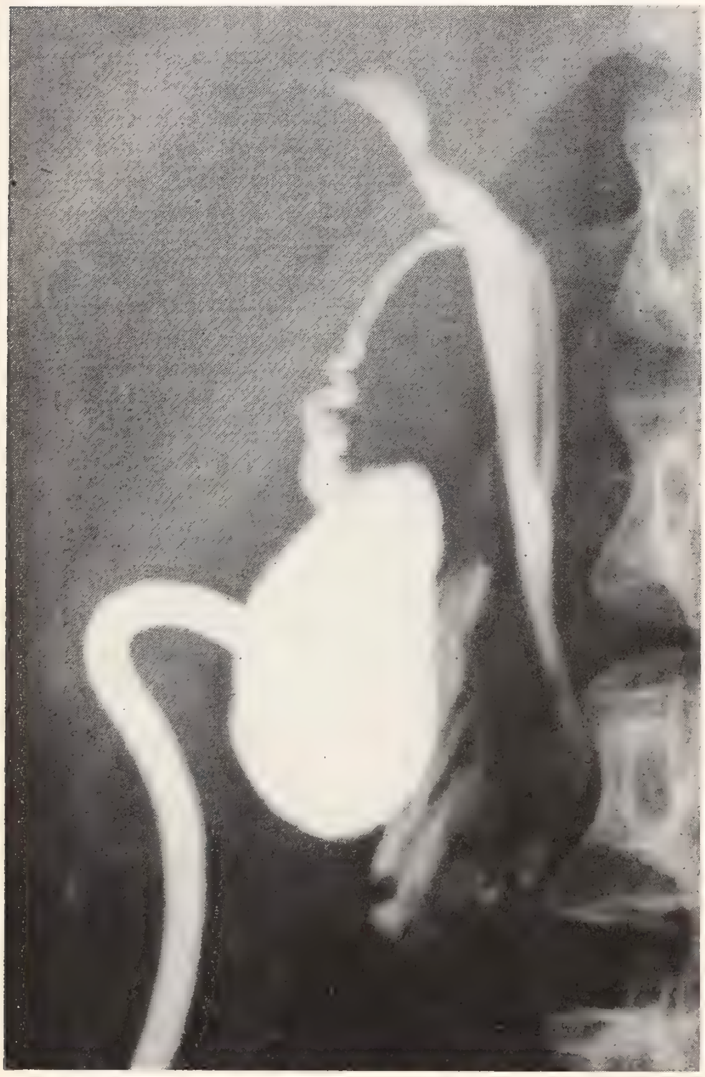

Fig. 1. Case E. N., a woman, aged forty-eight. Cholangiolitic cirrhosis. Cholangiogram through gall bladder under local anesthesia. No evidence of bile duct obstruction or abnormality.

Considerations of Treatment

We must readily admit that we lack any very specific therapy for hepatic cirrhosis. Nevertheless, it has become increasingly apparent in recent years that, of the two main forms of the disease which we have been considering, the results of certain general measures are often remarkably good in the primarily fatty group, while in the viral or non-fatty group there has been but little evidence that any of the measures thus far employed have been beneficial. The important contribution and subsequent experience of Patek and his co-workers[51,60] with a diet plentiful in protein and vitamins undoubtedly has led to a much more favorable attitude generally as to the prognosis of patients with cirrhosis. It appears however, that the good results which they are now able to report after a period of more than ten years[52] are limited to alcoholic fatty cirrhosis and that their statistical evidence of improvement and indeed of survival in these would be still better if the relatively small number of cases of post-hepatitis cirrhosis were omitted from their calculations. Patek[50] has evidently made no attempt to divide his material along the lines of the present classification, and he uses the term Laennec's cirrhosis in a much broader sense, and, it is believed, for a much more heterogeneous group.

In cases of Laennec's cirrhosis, using the term only as presently defined, it is quite clear that bed rest, abstinence and a good diet are often followed by dramatic improvement. Patients who are able to eat and whose livers *are still enlarged* have by far the best prognosis.[8,61] Those with small livers or with persistent and marked anorexia may fail to show any significant improvement, even with parenteral nutrition and various supplements. Nevertheless, we have found it difficult to determine any definite borderline, clinically, beyond which a patient is unable to recover, at least to a point compatible with comfort and a reasonable existence. In some of our cases liver biopsy at the outset has shown the most striking degree of fatty cirrhosis and disorganization[61,64] in spite of which after a variable period of time and following many and various therapeutic measures, recovery to a relatively normal state has been observed. In some instances even, in which jaundice ascites and somnolence were prominent at the outset, this recovery has been so complete that the physical examination and many of the liver function tests have returned entirely to normal, and only with a battery of tests has it been possible to detect some residual impairment of liver function.[61] Such individuals undoubtedly could pass a life insurance examination except for the history of their illness. Unfortunately, a reversion to their alcoholism all too often results in renewed progress of the cirrhosis. There are, of course cases of severe "alcoholic" fatty or Laennec's cirrhosis that fail to respond to therapy and succumb, either to hepatic insufficiency, blood loss, or intercurrent disease, or a combination. As mentioned earlier, the fat may be removed from the liver, at times quite completely, due to the lipotropic substances, but this is not necessarily followed by improvement even though the liver becomes considerably smaller. It is not unlikely that the determining factor in the prognosis is the *mass of relatively normal liver cells still present,* both to resume an improved function and for normal (not adenomatous) regenerative activity.

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*Study in progress with Dr. Richard Varco, professor of surgery, University of Minnesota. Peritoneoscopic cholangiography, as recommended by Royer and others,[29,57] has been demonstrated to be equally useful for this purpose.

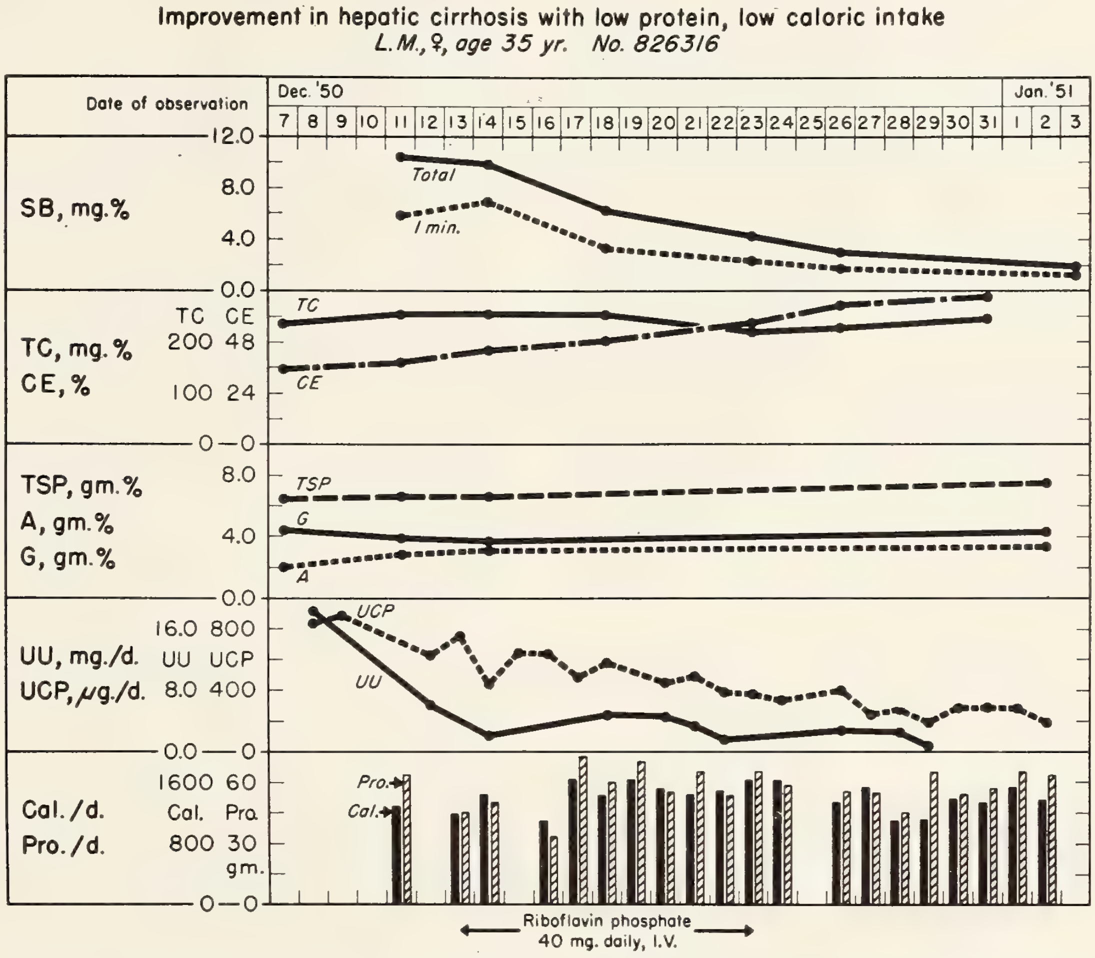

Fig. 2. Case L. M., a woman, aged thirty-five. Chronic alcoholism with cirrhosis, jaundice and ascites. Improvement with low protein, low caloric intake. Riboflavin phosphate was given in relation to a study of porphrin metabolism, but it is probable that improvement had commenced before it was started.

It has not been possible to determine what measures are of greatest significance in promoting recovery. The production of fatty cirrhosis in animals as a result of choline deficiency and its occurrence in human dietary deficiency without alcohol; also the improvement reported by Patek and others, following a liberal intake of protein and vitamins argue in favor of dietary factors as being of principal significance. Nevertheless, it is now clear that with rest and abstinence, striking improvement will often occur on diets relatively low in protein[30] Eckhart and co-workers[15] observed improvement in cases of "alcoholic" cirrhosis receiving a diet of carbohydrate almost devoid of protein but containing small amounts of choline and Vitamin B complex. In Figure 2 data are shown from a case of "alcoholic" fatty cirrhosis in which marked improvement occurred on a relatively low calorie and protein intake. Recent studies indicate, however, that no improvement occurs if calories are supplied as glucose alone, without choline or protein.[53] This is in accord with the observation of Best and co-workers[7] that fatty liver is promoted in the rat by feeding glucose, or alcohol, without choline. Nevertheless, these observations do not exclude the possibility that alcohol *increases* the requirement of choline, perhaps by interfering with its function in the liver. This, in fact, has been suggested by certain recent experiments of Klatskin.[31] If this were true, it would readily explain the occurrence of outspoken fatty cirrhosis in some individuals who have been drinking excessively for years but give histories of an adequate protein intake and are fully supported in this story by members of their families. A critical experiment that is much needed, but for obvious reasons difficult to carry out, is that of continuing cases of "alcoholic" fatty cirrhosis on alcohol, under controlled conditions in the hospital. A similar study has been carried out with respect to alcoholic polyneuritis, and this yielded the interesting information that the controlled cases not receiving alcohol responded more quickly to dietary and vitamin therapy.[9]

It appears inescapable that striking individual differences exist as to the ease of development of cirrhosis in chronic alcoholics, some with long histories of severe alcoholism and poor diet nevertheless failing to show the least evidence of cirrhosis; others, as already mentioned, with outspoken fatty cirrhosis but without any history of dietary deficiency. It cannot be denied that there may be important constitutional variance in the tendency to cirrhosis, and that this might be ascribed to the relative efficiency of utilization of lipotropic factors, especially choline. There are certainly differences between species in respect to the effect of alcohol on porphyrin metabolism, the disturbance of which in cases of human cirrhosis is probably a reflection of a disturbed cellular metabolism in the liver. An increased excretion of type III coproporphyrin characterizes acute alcoholisim in humans and is found in human alcoholics with cirrhosis, for variable periods after cessation of alcohol.[60,65] In rats[24] and dogs,[20] however, these increases have not been observed, either in relation to acute alcoholism or dietary fatty cirrhosis, either with or without alcohol.

It is doubtful that the addition of choline or methionine provides any benefit for the patient with "alcoholic" cirrhosis, beyond that to be expected from a normal intake of protein. Preliminary studies with large amounts of vitamin B_{12}, which has also been shown to be lipotropic and choline sparing, lead to the same conclusion.

A good deal has been written about the value of crude liver extract in the treatment of cirrhosis of the liver. Ralli and co-workers[55] have recently reported a difference in survival rates in patients receiving crude liver extract ("intraheptol") intravenously, as compared with those not so treated. In this report, however, it was not stated whether the controls returned at as regular and frequent intervals to receive a placebo instead of liver extract, and, since the entire group consisted in the main of alcoholics, this would seem to be an important requirement. We have not been able to convince ourselves of the beneficial effect of crude liver extract. We have often seen patients who were receiving it improve, but only after a long period of time during which other measures were employed, so that the improvement could scarcely be ascribed to the extract. Actually, a controlled study of the effect of any given substance in the treatment of hepatic cirrhosis is attended by unusually great difficulty. Such a study requires hospitalization and a base line period of observation, and, as already noted marked improvement may occur during the control period. On the other hand if the patient is very ill, one does not feel justified in attempting a controlled experiment with one substance since a number of days would be required, during which he would be denied the possible benefit of other measures.

It was generally hoped that salt-poor human albumin (prepared by Cohn's method) might be of great value in the treatment of hepatic cirrhosis. Its value, however, appears to be limited largely to certain patients with ascites, if given shortly after the abdomen has been tapped relatively dry[18,36] and particularly if used in conjunction with mercurial diuretics and a very low sodium intake.[17,23] Some caution is required in the administration of albumin, as pulmonary edema and fever have repeatedly been observed after large amounts.[64] It appears, too, that the likelihood of hematemesis from esophageal varices is distinctly increased by administration of albumin in an amount sufficient to have any effect on acites.[18,23]

The appreciation of the great significance of sodium for the accumulation of ascitic fluid is one of the more important recent advances in the treatment of cirrhosis.[16,17,38] Various studies have shown that if a low salt diet is to be effective, it must contain less than 1 gram of sodium chloride (0.4 gm. sodium) in twenty-four hours and preferably not more than half of this amount. [16,17] The use of an ion exchange resin to permit a more liberal intake of sodium, without absorption from the intestine, has proven of some value but has distinct danger.[19]

I have striven thus far to focus your interest principally upon the two forms of hepatic cirrhosis most common in this country. It may be well in closing to give brief attention to another member of the primarily non-fatty group, namely, hemochromatosis. This is the most important representative of the metabolic subdivision given in Table I. It is invariably a hypertrophic cirrhosis, in the broad sense, and the size of the liver may attain unusual proportions. It should be emphasized that while the disease is commonly termed "bronze diabetes" the evidence of cirrhosis and the pigmentation of the skin may appear well in advance of the glycosuria and in some instances enlargement of the liver due to iron deposition may be present without diabetes and with very little pigmentation of the skin. Liver biopsy is of the utmost value in the diagnosis of such cases, indeed of the disease quite generally. The skin biopsy may be negative for iron, even in the presence of considerable degrees of pigmentation.

An intriguing method of treatment of this form of cirrhosis has recently been suggested.[4,13] This depends upon the concept that the primary disturbance in hemochromatosis is one of abnormal iron absorption and storage and that the cirrhosis is secondary to the extensive deposits of iron. The method consists of repeated bleeding, over long periods of time, to force utilization of the iron stored in the liver and perhaps in this way to bring about improvement of the cirrhosis. Davis[13] has reported cases in which it appears that this may have been achieved to some extent. Howard and associates in this clinic have been following the case of a surgeon with hemochromatosis who has been unusually co-operative in permitting repeated blood letting over a three-year period.[26] In this span of time approximately 100 liters of blood have been removed. The liver is still enlarged, but it appears to be distinctly smaller than at the outset. The only evidence of improvement of liver function has been a slight increase in the serum albumin, and an increase of the cholesterol ester percentage. The pigmentation of the skin has clearly diminished. With this there has been an improvement in the patient's general status, his feeling of well-being and his ability to work. Only time will tell whether the disease can be held in abeyance permanently or whether even an outspoken remission can be brought about in this way. Of course, as time goes on a major difficulty is that the veins become increasingly less available to phlebotomy. In this connection one is reminded that a deliberate hookworm infestation has been employed by French clinicians in the treatment of some cases of polycythemia vera. Actually, this method would appear to be even more logical for hemochromatosis, though just as repugnant.

Summary and Conclusions

1. Hepatic cirrhosis is not regarded as a single disease with variations but rather as a group of diseases of widely varying etiology in which chemical, dietary, infectious, and metabolic factors are all of importance, either individually or in combination.

2. It is useful and logical and in accordance with present available knowledge to divide the cirrhosis into two main groups, those that are primarily fatty in pathogenesis and those that are primarily non-fatty. The principal representative of the former group in this country is the fatty (Laennec) cirrhosis of the chronic alcoholic, while the non-fatty group is represented mainly by the cirrhoses, either post-necrotic, diffuse portal, or transitions, following upon an attack of infectious hepatitis or occurring without known etiology. Cases which are indistinguishable from those following hepatitis, but which may have a differing etiology either develop insidiously or follow immediately upon an attack which may represent a sporadic infectious hepatitis. This form is more often observed in women. A special variety or stage in the large group of primarily non-fatty cirrhosis is the relatively pure cholangiolitic or primary biliary cirrhosis which undoubtedly corresponds with what Hanot originally described. This variety is of particular importance because of the ease with which it is confused clinically with extrahepatic biliary obstruction. In

this respect the value of cholangiography under local anesthesia is discussed.

3. The results of treatment of cirrhosis are much better than was formerly believed, but it is emphasized that the good results are limited largely to the primarily fatty group (in this country mainly in chronic alcoholics). The relative importance of various factors responsible for these good results is not yet clear, but it appears that the value of rest and complete abstinence may have been underestimated. The possibility is considered that alcohol may increase the choline requirement.

4. The treatment of ascites is centered upon the importance of a low sodium intake and of promoting sodium excretion, once due attention has been given to the simple factors just referred to.

References

1. Ahrens, E. H., Jr.; Payne, M. A.; Kunkel, H. G.; Eisenmenger, W. J., and Blondheim, S. H.: Primary biliary cirrhosis. Medicine, 29:299, 1950.
2. Axenfeld, H., and Brass, K.; Klinische and bioptische Untersuchuugen über den sogenannten Icterus catarrhalis. Frankfurt. Ztschr. f. Path., 57:147-236, 1942.
3. Baillie, M.: The Morbid Anatomy of Some of the Most Important Parts of the Human Body. Ed. 5, pp. 118-228. London: W. Bulmer and Co., 1818.
4. Balfour, W. M.; Hahn, P. F.; Bale, W. F.; Pommerenke, W. T., and Whipple, G. H.; Radioactive iron absorption in clinical conditions: normal, pregnancy, anemia, and hemocromatosis. J. Exper. Med., 76:15, 1942.
5. Baltz, J. I.; Steele, H. H., and Hartman, F. W.: The gradual evolution of acute infectious (epidemic) hepatitis into post-hepatic cirrhosis. Gastroenterology, 13:589, 1949.
6. Bergstrand, H.: Ueber die akute und chronische gelbe Leberatrophie. Leipzig: Georg Thieme, 1930.
7. Best, S. H.; Stanley, H. W.; Lucas, C. C., and Ridout, J. H.: Liver damage produced by feeding alcohol or sugar and its prevention by choline. Brit. M. J., no. 4635, p. 1001, 1949.
8. Bjornboe, M., and Raaschou, F.: Pathology of subchronic atrophy of liver: comparison with Laennec's cirrhosis. Arch. Int. Med., 84:933 (Dec.) 1949.
9. Brown, M. R.: Alcoholic polyneuritis. J. A. M. A., 116:1615 (April 12) 1941.
10. Chaikoff, I. L. and Connor C. L.: Production of cirrhosis of the liver of the normal dog by high fat diets. Proc. Soc. Exper. Biol. & Med., 43:638, 1940.
11. Connor, C. L.: Fatty infiltration of the liver and the development of cirrhosis in diabetics and chronic alcoholism. Am. J. Path., 14:347-363 (May) 1948.
12. Connor, C. L., and Chaikoff, I. L.: Production of cirrhosis in fatty livers with alcohol. Proc. Soc. Exper. Biol. & Med., 39:356, 1938.
13. Davis, W. D., Jr., and Arrowsmith, W. R.: The effect of repeated bleeding in hemocromatosis. Proc. Cent. Soc. Clin. Research, 23:26, 1950.
14. Davis, W. D., Jr., and Culpepper, W. S.: Cirrhosis of the liver associated with alcoholism; report of acute exacerbation with serial liver biopsies. Ann. Int. Med., 29:942 (Nov.) 1948.
15. Eckhardt, R. D.; Zamcheck, N.; Sidman, R. L.; Gabuzda, G. J., Jr., and Davidson, C. S.: Effect of protein starvation and of protein feeding on the clinical course, liver function, and liver histology of three patients with active fatty alcoholic cirrhosis. J. Clin. Investigation, 29:227, 1950.
16. Eisenmenger, W. J.; Ahrens, E. H.; Blondheim, S. H., and Kunkel, H. G.: The effect of rigid sodium restriction in patients with cirrhosis of the liver and ascites. J. Lab. & Clin. Med., 34:1029 (Aug.) 1949.
17. Faloon, W. W.; Eckhardt, R. D.; Cooper, A. M., and Davidson, C. S.: The effect of human serum albumin, mercurial diuretics and a low sodium diet on sodium excretion in patients with cirrhosis of the liver. J. Clin. Investigation, 28:595, 1949.
18. Faloon, W. W.: Eckhart, R. D.; Murphy, T. L.; Cooper, G. M., and Davidson, C. S.: An evaluation of human serum albumin in the treatment of cirrhosis of the liver. J. Clin. Investigation, 28:583, 1949.
19. Gabuzda, G. J., Jr.; Phillips, G. B., and Davidson, C. S.: Neurological complications in patients with cirrhosis of the liver given cation exchange resins. (To be published).
20. Greenberg, A.: Unpublished observations.
21. Gyorgy, P.: Experimental hepatic injury. Am. J. Clin. Path., 14:67, 1944.
22. Hanot, V.: Sur une Forme de Cirrhose hypertrophique. Thèse de Paris, 1876.
23. Havens, W. P., Jr., and Bluemle, L. W.; The effect of human serum albumin and mercurial diuretics on ascites in patients with hepatic cirrhosis. Gastroenterology, 16:455-465 (Oct.) 1950.
24. Hoffbauer, F. W.: Studies of urinary and fecal coproporphyrin excretion in rats. II. Experimental liver injury. (To be published.)
25. Howard, R., and Watson, C. J.: Antecedent jaundice in cirrhosis of the liver. Arch. Int. Med., 80:1-10 (July) 1947.
26. Howard, R.; Balfour, W. M., and Cullen, R.: Extreme hyperferremia in hemochromatosis with a note on the treatment of one case by means of bleeding over a period of three years. (To be published).
27. Karsner, H. T.: Morphology and pathogenesis of hepatic cirrhosis. Am. J. Clin. Path., 14:569, 1944.
28. Katzin, H. M.: Waller, J. V., and Blumgart, H.: "Cardiac cirrhosis" of the liver. A clinical and pathologic study. Arch. Int. Med., 64:457, 1939.
29. Keil, P. G., and Landis, S.: Peritoneoscopic cholangiography. Arch. Int. Med., 88:36, 1951.
30. Klatskin, G., and Yesner, R.: Factors in the treatment of Laennec's cirrhosis. 1. Clinical and histological changes observed during a control period of bed rest, alcohol withdrawal, and a minimal basic diet. J. Clin. Investigation, 28:723 (July) 1949.
31. Klatskin, G.: Gewin, H. M., and Krehl, W. A.: Effects of prolonged alcohol ingestion on the liver of the rat under conditions of controlled adequate dietary intake. Yale J. Biol. & Med., 23:317, 1951.
32. Kotin, P., and Hall, E. M.: "Cardiac" or congestive cirrhosis of the liver. Am. J. Path., 27:561, 1951.
33. Krarup, N. B., and Roholm, K.: The development of cirrhosis of the liver after acute hepatitis, elucidated by aspiration biopsy. Acta med. Scandinav., 108:306, 1941.
34. Kunkel, H. G., and Labby, D. N.; Chronic liver disease following infectious hepatitis. II. Cirrhosis of the liver. Ann. Int. Med., 32:433, 1950.
35. Kunkel, N. G.; Good, R. A., and Ahrens, E. H.: An unusual form of chronic liver disease in young women associated with marked hyperglobulinemia. (To be published) Personal communication from R.A.G.
36. Kunkel, H. G.; Labby, D. H.; Ahrens, E. H., Jr.; Shank, R. E., and Hoaglund, C. L.: The use of concentrated human serum albumin in the treatment of cirrhosis of the liver. J. Clin. Investigation, 27.305, 1948.

37. Laennec, R.T.: Traite' de l'Auscultation mediate, et des Maladies des Poumons et du Coeur. 4th ed. Brussels: Wahlen and Co., 1837.
38. Layne, J. A., and Schemm, F. R.: The use of a high fluid intake and a low sodium acid-ash diet in the management of portal cirrhosis with ascites. Gastroenterology, 9:705 (Dec.) 1947.
39. Leibowitz, S., and Brody, H.: Cirrhosis of the liver following infectious mononucleosis. Am. J. Med., 8:675 (May) 1950.
40. Lichtman, S. S.: Diseases of the Liver, Gall Bladder and Bile Ducts, 2nd ed. p. 828. Philadelphia: Lea and Febiger, 1949.
41. Mallory, F. B.; Cirrhosis of the liver; five different types of lesions from which it may arise. Bull. Johns Hopkins Hosp., 22:69-75, 1911.
42. Mallory, T.: The pathology of epidemic hepatitis. J.A.M.A., 134:655 (June 21) 1947.
43. Martz, B. L.; Kohlstaedt, K. G., and Helmer, O. M.: Use of ion exchange resins in the management of congestive heart failure and cirrhosis of the liver. Proc. Cent. Soc. Clin. Research, 23:70, 1950.
44. Matteini, M., and Marabini, B.: Sulla frequenza di alterazioni cliniche e funzionale del fegato in donne, affete da irregolarita mestruali. Riv. Crit. di Clin. Med., 51:74, 1951.
45. McCartney, J. S.: Cardiac cirrhosis. Bull. Univ. Minn. Hosp. Minn. Med. Found., 20:93, 1948.
46. McMahon, H. E., and Thannhauser, S. J.: Xanthomatous biliary cirrhosis (a clinical syndrome), Ann. Int. Med., 30:121 (Jan.) 1949.
47. Moschowitz, E: Laennec cirrhosis: its histogenesis, with special reference to role of angiogenesis. Arch. Path., 45:187, 1948.
48. Moser, R. H.; Rosenak, B. D.; Pickett, R. D., and Fisch, C.: The role of resins in the treatment of water retention associated with cirrhosis of the liver. Gastroenterology, 19:336, 1951.
49. Oliver-Pascule, E.; Galan, J., and Oliver, A.; Liver cirrhosis following hepato-enteropathy of infectious mononucleosis. Prensa med. Argentina, 35:11:429, 1948.
50. Patek, A. J.: Relation of acute hepatitis to cirrhosis of the liver. Am. J. Med., 8:267 (March) 1950.
51. Patek, A. J., Jr., and Post, J.: Treatment of cirrhosis of the liver by nutritious diet and supplements rich in vitamin B complex. J. Clin. Investigation, 20:481 (Sept.) 1941.
52. Patek, A. J.: Post, J.; Ratnoff, O. D.; Mankin, H., and Hillman, R. W.: Dietary treatment of cirrhosis of the liver. J.A.M.A., 138:543, 1948.
53. Phillips, G. B.; Gabuzda, G. J., and Davidson, C. S.: Comparative effects of a purified and an adequate diet on the course of fatty cirrhosis in the alcoholic. (To be published).
54. Post, J.; Gellis, S., and Lindenauer, H. J.: Studies on the sequelae of acute infectious hepatitis. Ann. Int. Med., 33:1378, 1950.
55. Ralli, E. P.; Leslies, S. H.; Stueck, G. H.; Shorr, H. E.; Robson, J. S.; Clarke, D. H.; and Laken, B.: The course of cirrhosis of the liver in patients treated with large doses of liver extract intravenously. Medicine, 28:301, 1949.
56. Rössle, R.: Entzündung der Leber. In Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anat. u. Histol. Bd. V, Teil 1:338. Berlin: J. Springer, 1930.
57. Royer, M.; Mazure, P., and Kohan, S.: Biliary dyskinesia studied by means of the "peritoneoscopic cholangiography". Gastroenterology, 16:83, 1950.
58. Sherlock, S.: Post-hepatitis cirrhosis. Lancet, p. 817, 1948.
59. Sherlock, S.: The liver in heart failure: relation of anatomical, functional, and circulatory changes. Brit. Heart J., 13:273, 1951.
60. Sutherland, D., and Watson, C. J.: Studies of the coproporphyrins. VI. The effect of alcohol on the per diem excretion and isomer distribution of the urinary coproporphyrins. J. Lab. & Clin. Med., 37:29, 1951.
61. Watson, C. J.: The prognosis and treatment of hepatic insufficiency. Ann. Int. Med., 31:405 (Sept.) 1949.
62. Watson, C. J., and Hoffbauer, F. W.: Liver function in hepatitis. Ann. Int. Med., 26:813 (June) 1947.
63. Watson, C. J., and Hoffbauer, F. W.: The problem of prolonged hepatitis with particular reference to the cholangiolitic type and to the development of cholangiolitic cirrhosis of the liver. Ann. Int. Med., 25:195 (Aug.) 1946.
64. Watson, C. J., and Greenberg, A.: Certain effects of salt poor human albumin in cases of hepatic disease. Am. J. M. Sc., 217:651-657 (June) 1949.
65. Watson, C. J.; Sutherland, D., and Hawkinson, V.: Studies of the coproporphyrins. V. The isomer distribution and per diem excretion of the urinary coproporphyrin in cases of cirrhosis of the liver. J. Lab. & Clin. Med., 37:8, 1951.
66. Zieve, L.; Hill, E.; Hanson, M. C. L.; Falcone, A. B., and Watson, C. J.; Normal and abormal variations and clinical significance of the one minute and total serum bilirubin determinations. J. Lab. and Clin. Med., 38:446, 1951.

MORE AUTOPSIES NEEDED

"An increase in the proportion of autopsies . . . would lead to more accurate diagnosis" in infants' deaths, says Mr. J. W. Brower, acting director of the Division of Vital Statistics, Minnesota Department of Health. A report recently issued by that division states that autopsies are not common in the smaller cities and rural areas of the state. For the first part of 1951, Duluth reported the largest proportion of autopsies, followed by Minneapolis and Saint Paul.

The Divisions of Vital Statistics and Maternal and Child Health are making a statistical analysis of infant deaths from birth and death records of Minnesota infants. This study indicates that 806 infant deaths occurred in the state during the first five months of 1951, and that 53.6 per cent of the infants who died weighed less than 5 pounds 9 ounces at birth. These infants were premature according to the widely accepted definition of the term. Fewer than 11 per cent of the deaths due to premature birth were autopsied. Congenital malformation was the second highest cause of death among the 806 infants, accounting for 171 deaths.—*Minnesota Health,* January, 1952.

REHABILITATION OF THE HEMIPLEGIC PATIENT

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DURING the past few years increasing attention has been paid to the retraining of patients who have hemiplegia. With the increasing aging of our population this problem promises to be of even greater importance in the future than in the past. The fact that satisfactory results can be obtained is indicated by the experience of Leemhuis and Brown, who have reported that at least 85 per cent of 105 hospitalized hemiplegic patients treated showed significant improvement under an integrated program of therapy. Such a program can be adapted for the treatment of patients in the home or as outpatients. In the management of a patient who has had a stroke it is necessary to take many factors into consideration. The more one can learn about his total situation, the more readily can one deal with specific problems as they arise.

It is possible to describe the management program according to the stage of the illness of the patient. The care of the patient during the acute illness is beyond the scope of this paper. Ordinarily one can consider this stage to be terminated when the major immediate threat to life seems to have subsided. In general, the acute stage lasts from two to ten days and merges into the subacute stage. At this point it is important to evaluate the extent of the disability. There may be severe weakness in the arm, the leg or both. There may be associated hemianesthesia and hemianopsia. The patient and his family should be gently but confidently introdduced to the idea that measures are being started for the purpose of aiding him to walk again.

Early in the subacute stage the paretic extremity is frequently flaccid but later it becomes spastic. Because of immobility and spasticity, contractures are prone to occur and may make their appearance within ten days. Common sites of early contractures are the shoulder, hip and knees. Spastic contractures of distal joints may develop later. Prevention of contractures depends on the early institution of passive motion daily through the full joint range. Proper positioning in bed will help avoid flexion at the hip and knee, as well as inversion of the foot. The correct position can be maintained by the use of sandbags, footboards, and so forth. If trained therapists are not available, nurses or responsible relatives can be instructed in the proper use of passive motion.

The duration of the subacute stage will generally vary from three to six weeks, depending on the cause, severity and location of the brain lesion. In general, a cerebral hemorrhage requires a longer period of rest in bed than does a cerebral infarct. The presence of a complicating medical condition may also prolong this period. During the subacute stage the patient is encouraged to move and use the affected extremities. At the same time he is stimulated to assist with his daily self-care needs[1] (Table I). By the end of the subacute stage he should be capable of the first eight self-care activities listed.

The early convalescent stage begins when the patient is permitted out of bed. At this time he is instructed progressively in the next seven self-care activities and the beginning ambulation activities (Table II). At this point the patient should be protected against possible falls. Care should be taken to attain full extension of the knee of the paretic leg. A solid table, posts of a bed, and so forth, may be used to substitute for parallel bars. The exercises at this time should be taken over by the patient as much as possible. Passive motion can be obtained by the use of pulley assistance. Muscle power in paretic muscles can be increased by utilizing the principle of progressive resistance exercises.[5] At the start the patient should be expected to lift ten times successively an amount which is one half of his maximal capacity for a single lift through the range of that particular joint. If he is unable to move the extremity through full range against gravity, the final few degrees he lacks may be completed by a therapist or by a properly instructed relative (active assistive exercises). Re-education exercises for the development of finer skills will probably require the supervision of a trained therapist. For details of the use of specific exercises, a standard text on the subject is suggested.[12]

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Read at the fourth annual Clinical Session of the American Medical Association, Cleveland, Ohio, December 5 to 8, 1950.

TABLE I.—SELF-CARE*

Activity	
1. Change position in bed	Below 16% 0
2. Feed self	
3. Wash hands and face	
4. Brush teeth and comb hair	16%-32% +1
5. Write name and address	
6. Use telephone	
7. Sit up for six hours	
8. Get from lying to sitting position	
9. From sit on bed to stand	33%-60% +2
10. Tie pajama bottoms	
11. Put on and take off shoes	
12. From bed to wheelchair to bed	
13. Sit and arise from armless chair	
14. Put on and take off pajama bottoms	
15. Put on and take off pajama tops	
16. In and out of chair at table	61%-84% +3
17. Shave self	
18. Pick object off floor	
19. Use toilet without assistance	
20. In and out of car	
21. Tie shoes	
22. Put on and take off braces	85%-100% +4
23. Clothe self completely	
24. Take bath without assistance	
25. Get from floor to stand	

*From Leemhuis and Brown by permission of the Journal-Lancet.

TABLE II.—AMBULATION*

Activity					
1 Arise and stand with aid in parallel bars					Below 16% 0
2. Arise and stand without aid in parallel bars					
3. Shift weight from foot to foot in parallel bars					
4. Walk in parallel bars with assistance					16%-32% +1
5 Walk in parallel bars without assistance					
6. Walk with assistance of instructor					
7. Walk without assistance, instructor by side					
8. Arise to stand from wheelchair without aid					
9. Walk alone, using crutch					33%-60% +2
10. Climb stairs with railing					
11. Climb stairs with rail backwards					
12. Walk sidewards and backwards					
13. Walk alone using cane					
14. Walk on ground and carpeting (rugs)					
15. Open and close door from stand					
16. Climb bus steps					61%-84% +3
17. Climb curb					
18. Climb steps without hand rail					
19. Discard wheelchair					
20. Distances (feet)........	25	50	75	100	
21. 48 feet—seconds........	85	80	75	70	
22. Distances (feet)........	150	200	300	400	85%-100% +4
23. 48 feet—seconds........	65	60	50	45	
24. Distances (feet)........	500	600	700	800	
25. 48 feet—seconds........	40	35	30	25	

*From Leemhuis and Brown by permission of the Journal-Lancet.

During the later convalescent stage the remainder of the self-care and ambulation activities are added to the patient's program. He is expected to take the initiative for continuing to utilize each new accomplishment in his daily activities.[4] The patient at this point is encouraged to take an increasing part in family affairs and household tasks. The development of hobbies, social events and group contact are all a part of his retraining program. The convalescent stage may be expected to last in the neighborhood of three months.

The stage of social and vocational readjustment follows the convalescent period. At the present time, many of the older patients with hemiplegia, particularly those with complicating medical disorders, must be satisfied with a goal of self-care, moderate ambulation and avocational pursuits at home. Others, especially in the younger age group, can achieve economic independence. Because of the disability it may be necessary for the person to learn a new vocation. The resources of such agencies and facilities as the state vocational rehabilitation units and local social workers can be utilized.

So far we have been discussing the relatively uncomplicated physical portion of a program of rehabilitation. Such measures are subject to considerable standardization. In the course of retraining patients with hemiplegia, complications of various sorts may well develop and require considerable individualization of the program of therapy.

Perhaps the most common medical complication is the presence of heart disease. This is followed in frequency by urinary difficulties and orthopedic disabilities. The development of thalamic pain or an aphasia from involvement of the major cerebral hemisphere will present perplexing treatment problems. Any detailed discussion of the management of these problems is beyond the scope of this paper.

The emotional readjustment of the patient is an ever-present problem in the management of these patients. The occurrence of a stroke with all of its actual and implied significance—physical, intellectual, emotional, financial and social—is actually a catastrophic blow to the patient and to his family. The patient is faced with physical disability which may well seem overwhelming. He has available to meet this a damaged nervous system with reduced capacity for adjustment.

In the presence of brain damage psychologic and intellectual capacities may be reduced to varying degrees, a process which Hughlings Jackson named dissolution. Affected in this process are the abilities to abstract, to integrate, to modulate emotions, and to select adaptive responses.[8] The damaged nervous system is left shallower, the top is lower, there is less of the person. The effects of this process will appear even though the patient's memory and conversation show no apparent deficit. With reduced ability to abstract, the patient misses fine transitional distinctions, is slow to grasp the essential features of a given experience and has difficulty in keeping in mind simultaneously two or more factors. Because he does not understand fully the implications of a situation, his ability to integrate information and form judgments is poor. He has a predetermined bias which interferes with his ability to relearn and interpret. There may be limited ability to modulate emotional responses, leading to unwarranted outbursts of irritability, crying or laughing. Behavior tends to become stereotyped, compulsive and concrete because of the loss of the most highly flexible, complex and voluntary mechanisms. The patient with brain damage has lost some of his capacity for free voluntary selection of behavior and must act in a more automatic manner.[2] Simple tests for the estimation of the amount of brain damage are available.[14]

Psychotherapy in the management of patients who have hemiplegia is an essential part of the treatment regimen. The physical disability imposes limitations on the patient's personal, vocational and social activities and threatens his position within his family or group. The psychologic effect of brain damage may significantly repair his capacity for adaptation. These two factors interact with the basic personality structure of the individual. This constellation of forces may well have an effect which is catastrophic. Suggestion, reassurance and support by the physician can be potent forces in preventing or ameliorating a catastrophic effect. Many patients will respond with hope to a well-planned, active therapeutic program which says in effect, "You will be able to walk." Appropriate measures must be taken to bring the family into the therapeutic regimen, to help educate them in their role and to deal with situational problems within the family group.

In directing an integrated treatment program, it is possible to approach directly by symptomatic management various problems as they arise.[3]

Confusion is a constant finding during the acute stage of a stroke. The duration of the confusion will depend largely on the extent and location of the brain lesion. It is important to protect the patient against self-harm during this stage. Particular attention must be paid to fluid and electrolyte balance, as well as caloric and vitamin intake. As soon as possible a simple daily schedule should be started. Regularly scheduled attention to the bowels and bladder will reduce soiling. Gradual habit training in the simple self-care activities of personal hygiene, turning in bed, feeding, and so forth, is gradually added. Social contacts are kept at a very simple level.

Apprehension and fear are generally disguised or kept suppressed by various defenses. They may appear during the acute stages as delirium, which is actually fear mixed with confusion. The patient's fears under such circumstances become *his* reality. He must be protected against self-harm and should be encouraged to accept reassurance and support from someone he trusts. Properly chosen sedative and narcotic drugs are of distinct value. They should be quick-acting drugs that are rapidly metabolized. Slow-acting, slowly excreted drugs often produce a prolonged twilight state of consciousness that makes unmanageable an otherwise mild delirium.

Anxiety and tension reactions are particularly common in the early stages of retraining. They tend to reappear when new experiences are anticipated, for example, when the patient first is permitted to stand or walk, when he goes outdoors for the first time, or when a return to work is planned. The capacity to adapt is limited by the physical disability, by the psychologic effects of brain damage, and by long-standing personality characteristics. On approaching a new problem the hemiplegic patient tends to feel insecure, anxious and fearful, and because of the total catastrophic effect of the "stroke" he is less able to tolerate anxiety. To defend himself against this anxiety he may be forced to resort to compulsiveness, irritability, depression, or indifference and apathy. When possible, such reactions should be foreseen and avoided. Encouragement, reassurance and support will help considerably in allaying the feelings of anxiety. The activity program should be of progressive difficulty but should be undertaken in easy steps. It is particularly important to avoid tasks which are overwhelming to the patient.

Compulsiveness, stereotyped behavior, perseveration and rigidity result directly as concomitants of brain damage, and they may also occur as an adaptation to any stress situation. The marked limitation of flexibility will delay a retraining process and requires an attitude of increased patience on the part of the physician and family. Retraining should begin early because it is difficult to change unfavorable habits which have become rigidly fixed. Sudden changes or complicated situations are likely to produce confusion and return the patient to increased rigidity of response. It is important to utilize the compulsiveness of the patient by developing a schedule of daily activities, utilizing the patient's natural needs and rhythm. A simple schedule would include daily self-care activities of toilet, dressing and eating. Ambulation, recreation, handcraft and social activities are gradually added to the daily routine. Family responsibilities and vocational readjustment are later steps which can be gradually assumed by some patients.

Irritability, impatience and stubbornness are characteristic of many patients with brain damage, particularly patients whose pre-illness personality showed evidences of this mood. Fortunately the outbursts of irritability are generally short-lived and there are times when the patient is more amenable. It is generally wiser to be permissive when the patient is obstinate and then induce him to accept a suggestion when he is more tractable. On rare occasions it may be wise to establish by an interested, calm, firm approach that the physician is boss, but it is ordinarily wise to avoid such a showdown. Frequently the irritability will be most marked in relation to other members of the family. Consequently an inquiry into the attitudes and behavior of the family group is indicated. As soon as practicable the patient is permitted to take on responsibility for his daily activities to reduce the frustrations of inactivity. Competition with other patients, hobbies, diversions and social contacts all combat irritability by fostering the independence of the patient.

Depression is a common response to serious illness and may be particularly persistent in patients with generalized brain damage. It appears to be most common in individuals whose pre-illness personality has shown moderate aggressiveness coupled with moderate needs for dependency and support. Such a person feels guilty and self-accusatory about giving in to his dependency needs. In setting up a treatment program it is important to avoid assigning a task at which the patient will fail, since any failure tends to produce self-accusation and increase the depression. To prevent rut formation, the program should be started early with simple activities. A period of lightened depression commonly occurs in the late afternoon, a time which can be used to begin activities. Early, the activities should be simple and should require little effort. Recreation, physical activities and social contacts are gradually added within the patient's tolerance. The load should be progressive but should never exceed his capacity at the time. Responsibilities must be avoided until the patient is well recovered. A depressed patient may feel the obligation to take on responsibilities before he is actually prepared to cope with them.

Somatic complaints, fatigability, hypochondriacal attitudes and conversion symptoms may be unconsciously utilized to avoid the tension and anxiety of facing new situations. Such attitudes occur particularly in individuals who have a lifelong history of passive dependent relationships with other people. Such patients unconsciously utilize a serious or disabling illness to maintain the dependent relationship by conversion symptoms, fatigability and somatic complaints. In the treatment of a patient with such findings it is important to recognize that the symptoms are serving a useful purpose in fulfilling his dependency needs. Any sudden opportunity to get well is also a threat to the need for dependence and is likely to exacerbate the symptoms. An inquiry into life situations, previous personality and family attitudes is important. It is often helpful to foster in the patient a reaction of dependence on the physician and the therapeutic measures. It is important to see that early the patient gets adequate "tender loving care" to avoid forcing him to wheedle attention by somatic complaints. As the treatment schedule is established the physician is able to withdraw his support gradually and encourage the transfer of the dependence to the routine of daily activities. Prolonged symptomatic therapy in which the patient does not actively participate should be avoided.

Indifference, apathy and withdrawal may be the more or less direct result of brain damage but are usually conditioned by the basic personality make-up of the individual. They represent the ultimate in defense against feelings of anxiety, resentment, pain and depression. Goldstein spoke of this as a catastrophic reaction to a situation which overwhelms the adaptive capacities of the person. A patient who has developed or has the capacity for developing a catastrophic reaction must be handled with great care. Approaches must be gentle, reassuring and tentative. Attempts must be made to learn of factors which arouse in the patient a spark of interest. The therapist must woo the confidence of the patient. Very slowly the retraining procedures may be begun. Extreme caution must be observed to avoid new frustrations which might again threaten the defenses of the patient.

The concept of body image plays an important role in the readjustment of a hemiplegic patient. There are numerous hypotheses and observations related to the neurologic, psychologic and psychiatric aspects of the body image (Kolb). For the purposes of the present discussion a few observations may suffice. A concept of the body image is essential in the daily activities of every human being. The infant begins to develop the concept with his early exploratory movements of his arms, legs, body, mouth, eyes, and so forth. These exploratory movements gradually develop from impressions of isolated parts into a concept of an integrated whole. As the child grows in stature, there is a continual changing of the body image. The body image concept is a fluid one even in adult life. It must be different when one is wearing glasses than when one is not wearing them. The purchase of a new hat necessitates some reorientation of body image. While one is driving, the automobile becomes in essence an extension of one's own body image. As we begin to develop the middle age spread, we readjust our concept of our body image to match.

The stroke, with its sudden hemiplegia, violently disrupts the patient's concept of his body image. Without attempting to cite the reasons and hypotheses which explain the phenomena, I should like to describe some of the phenomena observed. Most patients will early consider their involved side as paralyzed and useless. They tend to look at the *loss of function* rather than at what function is remaining. An occasional patient will deny the existence of an obvious hemiplegia or will fail to recognize the paralyzed extremities as his own.[6]

During the convalescent stage the patients begin to reorient their concept of body scheme. There is generally a tendency for persistence of the negative concept, that is, loss of function. Patients may have a tendency to look on themselves as crippled. There may even be continuing imperception for the extremity or a portion of it. The patient who is adapting more successfully will gradually begin to develop a concept of body image based on positive concepts. He will begin to recognize the remaining usefulness of his extremities and integrate the useful although impaired extremity into his ordinary daily activities. Continuing studies on the role of body image promise to give increasing information on the problem of retraining patients.

This attempt to survey quickly the principles of rehabilitation of patients who have hemiplegia has of necessity been superficial. The purpose is to give a blueprint of a flexible program of therapy. Details of the physical measures and additional bibliography will be found in the standard texts on physical medicine.[11,12] A careful study of the patient, his family and his social situation will give added information. Age of the patient, duration of disability and complicating medical conditions will influence the course of treatment but do not contraindicate instituting retraining therapy.

References

1. Baker, A. B., and Brown, J. R.: Rehabilitation of the Chronic Neurologic Patient. V. A. Pamphlet 10-29, p. 9, Veterans Administration. Washington, D. C.: U. S. Government Printing Office, (May) 1949.
2. Brown, J. R.: Retraining patients with brain damage. Journal-Lancet, 70:455-458 (Dec.) 1950.
3. Brown, J. R.: The holistic treatment of neurologic disease. M. Clin. North America, 34:1019-1028 (July) 1950.
4. Deaver, G. G., and Brown, Mary E.: Physical Demands of Daily Life: An Objective Scale for Rating the Orthopedically Exceptional Studies in Rehabilitation. No. 1, 1-35. New York: Institute for the Crippled and Disabled, 1945.
5. DeLorme, T. L., and Watkins, A. L.: Technics of progressive resistance exercise. Arch. Phys. Med., 29:263-273 (May) 1948.
6. Gerstman, Josef: Problem of imperception of disease and of impaired body territories with organic lesions; relation to body scheme and its disorders. Arch. Neurol. & Psychiat., 48:890-913 (Dec.) 1942.
7. Goldstein, Kurt: Aftereffects of Brain Injuries in War, Their Evaluation and Treatment; the Application of Psychologic Methods in the Clinic. New York: Grune & Stratton, 1942.
8. Halstead, W. C.: Brain and Intelligence; a Quantitative Study of the Frontal Lobes. Chicago: University of Chicago Press, 1947.
9. Jackson, J. H.: Selected Writings of John Hughlings Jackson. Evolution and Dissolution of the Nervous System—Speech—Various Papers, Addresses and Lectures. Vol. 2, pp. 3-118. London: Hodder and Stoughton, Limited, 1932.
10. Kolb, L. C.: Psychiatric aspects of treatment for intractable pain in the phantom limb. M. Clin. North America, 34:1029-1041 (July) 1950.

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POSITIVE FINDINGS IN FUNCTIONAL NEUROPSYCHIATRIC DISORDERS

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CONTRARY to the belief of some physicians, there is no clear-cut dividing line between "functional" and "organic" nervous disorders. Formerly it was the custom to make the diagnosis of a "functional" disorder by exclusion, i.e., when the symptoms presented by the patient failed qualitatively or quantitatively to correspond to objective findings or to meet known diagnostic criteria. Physicians adhered to the two-valued "either-or" orientation and assumed that a given nosological entity had to be *either* "functional" *or* "organic."

Stanley Cobb[1] has pointed out that neuropsychiatric disturbances are the result of an interplay of four main categories of events: (1) genogenic or hereditary causes, (2) histogenic causes or those related to visible lesions of the tissues, (3) chemogenic causes due to ultramicroscopic (molecular) changes in tissue function and structure, and (4) psychogenic causes due to maladjustments in personal relations. To quote Cobb: "I would insist that the old dichotomies 'functional or organic,' 'mental or physical' are not only wrong but lead to bad habits of thinking because they lead to static and obsolete ideas and do not allow for modern pluralistic and dynamic ideas of matter and structure. Physiology is the basis of clinical diagnosis, and no physiologist would accept for a moment the clinical jargon that uses the word 'functional' to denote 'psychogenic.' Anybody who stops to think, realizes that no function is possible without an organ that is functioning and, therefore, no function takes place without structural change. Every symptom is both functional and organic. It is never a question of 'either-or'."

Lester S. King[3] considers diagnosis to be extrapolation, and he says that the process of making a diagnosis may be compared to looking at a moving picture. A motion picture reveals a definite sequence of events in which one part has some definable relation to the other parts. In making a diagnosis the physician may be compared to a movie spectator who, viewing a segment of film tries to guess the plot, predict the outcome, and name the category to which it belongs. Since diseases, like movies, fall into certain general groups, the process often is not too difficult. A veteran movie fan, seeing the middle of a picture, and seeing a cowboy, horse, some Indians and a tough looking hombre with a moustache, can usually make a pretty good guess as to the beginning of the picture which he hasn't seen and also a good guess as to the outcome which he also has not seen. In the same way, many diseases are so characteristic that the experienced physician, by observing only a brief span of its natural history, can predict the outcome as well as identify the villain.

On the other hand, some movies, like many diseases, are subtle, and the viewer must see a considerable part of it before he can hypothecate the beginning and the ending. By the same token, the physician, before he can fit a disease into a known category, must similarly have a period of observation fortified by special tests and diagnostic procedures.

In spite of the fact that there are no absolutes in the order of purely "functional" or purely "organic" diseases, there is a certain degree of polarity in the field of morbidity in general. Most diseases tend to be *predominantly* "functional" or *predominantly* "organic." As before stated, in many instances the diagnosis of a predominantly functional disorder is made on the absence of positive findings which fit into the known diagnostic categories. However, after having examined many hundreds of patients suffering from symptoms not related to any demonstrable organic lesion, I am impressed by the number of positive objective findings which emerge during the course of a neurological examination. Some of these are as follows:

Station

Although swaying or falling in the Romberg position occurs in cerebellar disease and in disorders which produce degeneration of the dorsal columns of the spinal cord (tabes dorsalis, combined sclerosis, et cetera), swaying can also occur in functional nervous disorders. However, there is a difference between the type of swaying seen

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Read before the Ramsey County Medical Society, Saint Paul, Minnesota, November 26, 1951.

in organic disease and that seen in the psychoneuroses. In organic conditions the patient will actually fall unless he is supported by the examiner. In functional states, the patient never falls, even if he is not caught or if he is unable to reach something to steady himself. Moreover, in functional nervous disorders the swaying is of a much more bizarre and dramatic nature than it is when the manifestation is due to organic disease.

Gait

The hysterical gaits, and the gaits shown by malingerers are entirely different from those seen in organic disorders. Halting gaits, steppage gaits, grotesque limping, and bizarre and unphysiologic associated movements characterize the gait of a patient suffering from a functional nervous disorder.

Flinching and Startle Reactions

These are seen in connection with a variety of tests. When the pupillary reactions are tested with a light of moderate intensity, in many instances the patient with a functional nervous disorder will pull his head back and squeeze his eyes shut. Similarly, when the tuning fork is held close to either ear, the patient with a functional nervous disorder will pull away from it and flinch as if the sound were painful to him. These reactions are always very conspicuous by reason of their bizarre and unphysiologic nature.

An eighteen-year-old girl while playing basketball in her school gymnasium was thrown against a piece of equipment, slightly injuring her lower back. She continued to play for another fifteen or twenty minutes experiencing only slight discomfort in the back. Several hours later she reported to the school nurse that the backache was worse and that there was pain down the back of the left thigh, extending into the left calf. The pain was not aggravated by coughing, sneezing, or straining. The examination by the school physician was negative but the girl was hospitalized for physical therapy. When I saw her two weeks after the accident, she still was complaining of pain in the lower lumbar region radiating into the left calf. The neurological examination was entirely negative for organic signs. However, when the ears were tested with a tuning fork (c 128) there was a marked flinch reaction. Moreover, the *gait* was peculiar and grotesque. The patient walked on the tips of the left toes, held the left knee slightly flexed, and the knee was kept in adduction in such a manner as to produce almost a scissors gait. When pain sensation was tested with a pin, there was extreme hyperesthesia over a stocking distribution in the left lower extremity from midthigh down.

Because of these objective findings, which I consider pathognomonic of hysteria, the patient's psychic life was explored, and it was found that she was in a severe emotional conflict revolving around an adolescent love affair amid strong parental objections. She was given sodium amytal intravenously, and under its effect she abreacted and ventilated a great deal of hostility toward her parents. Physiotherapy was discontinued and the patient was given insight therapy and within two days was completely free of symptoms, and she now is in school, doing very satisfactory work.

Functional Reduplication of Deep Reflexes

This phenomenon is almost pathognomonic of a functional disorder, and I think that it relates to the startle reaction. It is difficult to describe, but, once seen, it never will be forgotten. It usually is seen when the knee jerk is elicited. Instead of a single contraction of the quadriceps femoris which appears when the patellar tendon is tapped, the patient produces a series of knee jerks in rapid succession. The reaction is totally unlike the exaggerated knee jerk seen in pyramidal tract involvement, for instead of eliciting a single reaction whose amplitude and speed are greater than those seen in normal knee jerks, the stimulus elicits a *series* of jerks. There also is what has been referred to as the "anticipatory knee jerk." A normal or organically abnormal knee jerk can be purely reflex and can be elicited in the spinal animal which has neither psyche nor consciousness. At the same time it is possible for a nervous patient to have a knee jerk just before the patellar tendon is tapped with the percussion hammer. This relates to what I have referred to as "functional reduplication" of the knee jerk, which merely indicates that the patient has anticipated the stimulus and has jerked his knee. It is the difference between the knee jerk of physiology and the "person jerking the knee" of psychobiology. It is quite clear that such a performance must necessarily be the result of a previous experience with the test, coupled with certain personal emotional attitudes and relations to it as representing general tension and fear of the examination.

Sometimes responses are accompanied by jumping of the entire body. The same thing often happens when the Achilles reflex is tested. It also may occur with the testing of other deep reflexes.

Incomplete Reactions

These are best described as more or less half-hearted attempts to carry out the commands of the examiner. For instance, when the patient is told to close his eyes tightly, he does not close them tightly. He closes them only partly, and he then opens them after having kept them partly closed for only a second or two. Another incomplete reaction is failure on the part of the patient to follow the examiner's finger when the extra-ocular movements are being tested. While the test is being performed, the patient will keep his eyes on the examiner rather than follow the examiner's finger. If he does follow the examiner's finger, he does not keep watching it but will follow the finger only part way and then return his gaze to the face of the examiner or to some other point. Rough testing of the visual fields often elicits signs that are characteristic of a functional nervous disorder. In the first place, during the confrontation test the patient will not keep his gaze fixed on the stationary reference point (usually the examiner's nose). He will watch the examiner's fingers, and sometimes it is impossible to get him to avoid doing this. Secondly, the field patterns themselves may show the typical "gun barrel" or "tubular" configuration characteristic of hysteria. If the fields are mapped on a tangent screen and then on an ordinary perimeter, in hysterical patients they will be the same size on the screen as they are on the perimeter card. This is a demonstrably objective sign of hysteria—a purely functional nervous disorder.

Another incomplete reaction is in the finger-nose test. When the patient is asked to extend his arms in the horizontal position, close his eyes, and then touch his nose, he does so in an incomplete and half-hearted manner. Furthermore, the patient frequently will display an ataxia which is all out of proportion to any known organic condition, i.e., he will touch his forehead with his index finger, or he will miss his head completely and point way past the ear opposite the hand which he is using. Furthermore, he usually will hit the same spot on successive attempts, while the patient with an organic ataxia will hit different areas. It will be noted that the past-pointing always occurs on the side of the head opposite from the hand which is being used in the test. Similar incomplete reactions are found in the heel-to-knee test.

Functional Sensory Patterns

The well-known glove and stocking anesthesia need not be discussed here. The "yes" and "no" test for sensation are well-known evidences of a hysterical disturbance. Shifting areas of anesthesia, areas of anesthesia that correspond to psychological boundaries rather than to anatomical boundaries, peculiar dissociations which are anatomically and physiologically impossible, and a variety of other sensory responses are characteristic of the functional nervous disorders.

Therefore, it is readily seen that the diagnosis of certain functional nervous disorders can be made upon positive neurological findings, and the examiner will not have to rely upon the exclusion of findings suggesting organic neurological disease.

It is interesting to speculate as to the dynamics of these positive findings exhibited by patients suffering from functional nervous disorders. I believe that the most important factor is anxiety. We know that anxiety is present in all the psychoneuroses, although it need not always be manifest. Witness the "belle indifference" of the hysteric. Here the anxiety is not overt, but it plays its part in the unconscious life of the patient.

It is not difficult to see how overt anxiety accounts for flinching and startle reactions, and how it produces the functional reduplication of deep tendon reflexes as well as the anticipatory knee jerk. However, when the anxiety is latent, one must delve into the psychodynamics of the process in order to understand the mechanism.

Grinker[2] concluded that "repression and inhibition, which are basic principles in psychoanalysis and neurology, respectively, are dynamically identical." Both repression and inhibition indicate a negative factor, in that a certain level of activity is abandoned, and a positive factor, which results from or is permitted by the shift of activity from one portion of the nervous system to another. "In the evolutionary (phylogenetic) process and

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HEMORRHAGE IN THE RECTUS MUSCLE

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HEMORRHAGE into the rectus muscle and/or sheath is an established clinical entity with a definite symptomatology and physical findings. Its chief significance lies in that it is most often indistinguishable from an acute intra-abdominal condition.[1,2,6,10,11,14,17]

At this institution, two such cases were recently encountered. A summary of the cases and a review of the literature on the subject is presented.

Case Reports

Case 1.—A sixty-two-year-old machinist, one week prior to admission, experienced the gradual onset of a constant dragging pain in the right lower quadrant. The pain was occasionally sharp in character with no relation to food or exercise and remained localized. There was no fever, chills, diarrhea, constipation, food intolerance, back pain or dysuria. The stools and urine were normal in color.

On the evening of May 26, 1951, he was seen at home because the pain became more intense. The following morning the pain had not subsided and the patient was admitted to the hospital.

Physical examination revealed a well developed and well nourished male in no acute distress. The chest was clear to auscultation and percussion. The respirations were 16 and the pulse 80 per minute. The temperature was 98.6 degrees. The heart was not enlarged, the tones and rhythm were good, and no murmurs were heard. The blood pressure was 140/90. There was tenderness, rebound tenderness, rigidity and guarding in the lower portion of the right rectus muscle. Rectal examination revealed right-sided tenderness.

The red blood cell count was 4,660,000 with 13.5 grams of hemoglobin. The white blood cell count was 8,200 with 76 per cent segmented neutrophiles. The platelet count was 234,000 with a normal clotting and bleeding time. The prothrombin activity was likewise normal.

An exploratory laparotomy was performed, using a right rectus incision. A hematoma was found, which dissected up and down the rectus sheath on the right side. A visible bleeding vessel was clamped and tied. The amount of blood was neither measured nor estimated. The peritoneal cavity was entered and found to be normal, but an appendectomy was performed.

Histopathologic studies revealed complete obliteration of the appendiceal lumen by old fibrous tissue with no evidence of an inflammatory process. The material from the rectus muscle was made up entirely of blood clot with no evidence of muscle tissue.

The patient made an uneventful recovery.

Case 2.—A sixty-nine-year-old male had apparently fallen at home and sustained multiple bruises of the face, left elbow and right chest and was admitted to the hospital on August 2, 1949. The patient had had no complaints a few days before when he visited his physician for parenteral liver which he had been taking since June of 1948 when a diagnosis of pernicious anemia was made.

On admission, the abdomen was tense but no bowel sounds were audible. There was generalized abdominal tenderness and rigidity, most marked in the right lower quadrant. The hands and feet were pale and cold. The rectal temperature was 102 degrees. The pulse was rapid and feeble with a blood pressure of 100/70. The chest was clear and the neurological examination was negative. An electrocardiogram showed a right ventricular strain with right axis deviation. A portable flat plate of the abdomen was not too satisfactory but did reveal dilatation of the colon and questionable dilatation of a few loops of small bowel in the central portion of the abdomen. No fractures could be demonstrated.

The hemoglobin was 14 grams. The white blood cell count was 4,600 with 70 per cent neutrophiles. The urine showed a trace of albumin and a 4-plus sugar.

An exploratory laparotomy was performed approximately five hours after admission. A large extraperitoneal hematoma was found with a hemorrhage in the rectus muscle estimated at about 750 cc. There was no intraperitoneal bleeding.

In spite of a transfusion and adequate intravenous fluids, the patient went rapidly downhill with a shock-like picture and expired the following morning.

A necropsy examination revealed the following essential findings:

1. Diffuse infiltration of the abdominal wall with approximately 500 cc. of clotted blood in the right lower quadrant.
2. Extensive atelectasis of both lungs.
3. Severe mesenteric, mediastinal and retroperitoneal edema.

Death was due to traumatic shock.

Etiology

There is no single specific etiologic factor in this condition. The following general classification is widely accepted:[2,3,5,6,12,13,16,17,20]

1. Those with normal musculature and blood vessels.
   (a) Direct and indirect trauma.
   (b) Pendulous abdomen.
2. Those with disease or attenuation of muscles.

From the Department of Pathology, Saint Luke's Hospital, Duluth, Minnesota.

(a) During pregnancy, labor or puerperium.
(b) Debilitating diseases such as: typhoid and typhus fever, influenza, tetanus and blood dyscrasias.
(c) Vascular disease.

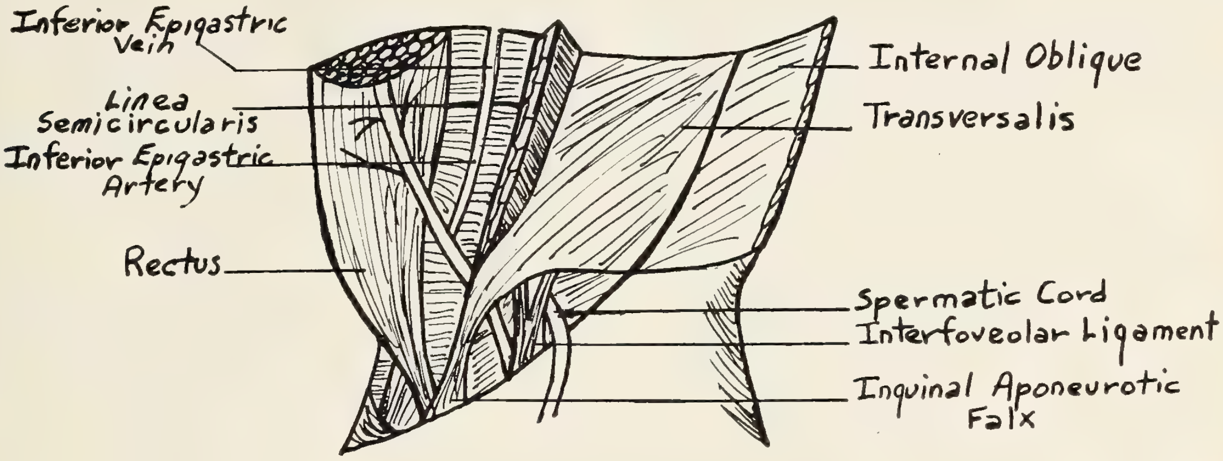
Inferior Epigastric Vein
Linea Semicircularis
Inferior Epigastric Artery
Rectus
Internal Oblique
Transversalis
Spermatic Cord
Interfoveolar Ligament
Inguinal Aponeurotic Falx

Fig. 1. Diagrammatic sketch of lower musculature.

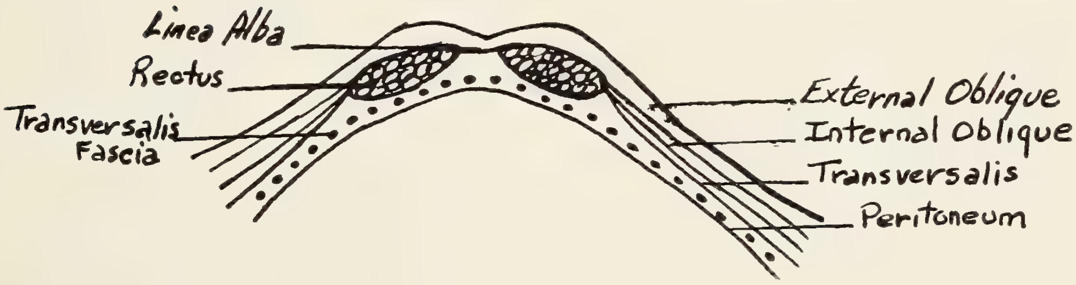
Linea Alba
Rectus
Transversalis Fascia
External Oblique
Internal Oblique
Transversalis
Peritoneum

Fig. 2. Diagrammatic sketch of transverse section through anterior abdominal wall below linea semicircularis.

The effect of direct trauma such as a blow or fall is easily understood. Spontaneous or idiopathic hemorrhage has been reported to occur as the result of light exercise, jumping, riding, turning in bed, lifting, sneezing, coughing, vomiting and obstipation.[1,2,5,10,13,17,19]

In a collective review[17] of 100 cases in the literature, only 4 per cent occurred in the colored race. The ratio of women to men was 3:1. The ages ranged from seventeen to eighty-three with an average age of 46.8 years. The decades ten to thirty accounted for 14 per cent; thirty to fifty for 37 per cent; fifty to seventy for 32 per cent; seventy to ninety for 7 per cent, and in ten cases the age was not stated. In the same review, direct trauma accounted for 19 per cent and those associated with pregnancy for 22 per cent. Six cases occurred during the course of such diseases as influenza, typhoid fever and blood dyscrasia. Spontaneous or idiopathic hemorrhage accounted for 53 per cent of cases. A collective series[19] of 127 cases appearing in the literature up to 1923 disclosed that 107 (84.2 per cent) occurred in young males following exercise in whom the musculature and vascular system were normal. In a review[15] of fourteen cases occurring in women, the majority were multipara and all but one were over thirty-five years of age.

Pathogenesis

The anatomical differences of the rectus muscle and aponeurotic sheaths in the lower half of the abdominal wall account for the greater incidence of vascular rupture and hemorrhage in this location.[2,3,4,11,16,17,18] The lower third of the muscle is the most powerful portion and undegoes greater changes in length. The extramuscular branches of the vessels are likewise longer to compensate for the excessive change in length.[4] The sheath of the rectus, formed by the aponeuroses of the obliqui and transversalis muscles, passes in front of the muscle below the level of the semilunar line of Douglas. The muscle is thus separated from the peritoneum only by the thin transversalis fascia on which lies the inferior epigastric artery and its anastomoses with the descending branch of the superior epigastric artery (Figs. 1 and 2). The bleeding thus primarily occurs between the muscle and posterior sheath above the semilunar line of Douglas and between the muscle and peritoneum below this fold.[2] The hemorrhage is usually unilateral and below the level of the umbilicus.[2,17] In a collective review of 100 cases[17] the hemorrhage occurred in the right lower quadrant in forty-seven and on the left side in twenty-two cases. The right upper quadrant was the site of predilection in nine and the left upper in seven cases.

Symptoms and Diagnosis

The symptoms are essentially those of an intra-abdominal condition with abdominal pain, tenderness, rigidity, nausea, vomiting, fever, leukocytosis, ecchymosis and a palpable mass.[1,2,6,8,14,16,17] The most common and earliest symptom is pain which is usually severe and sudden in onset but may be mild for several days. In a review[17] of 100 cases in the literature, abdominal pain was present in all but three and those patients were comatosed from the onset. Tenderness is usually quite marked and was either localized or generalized in 71 per cent of cases. Abdominal rigidity, either localized or diffuse, was recorded in 59 per cent. Nausea and vomiting occurred in 23 and 15 per cent respectively. The temperature ranged from 97 to 102 degrees with an average 99.5 degrees. The white blood cell count averaged 11,600 with a high of 18,600 and predominance of neutrophils. Ecchymosis is usually a late sign and occurred in 21 per cent of cases. A palpable mass occurred in 78 per cent of cases. In no case was there an abnormal platelet count, bleeding or coagulation time.

The symptoms so closely simulate an intra-abdominal process that an incorrect diagnosis will invariably be made if this condition is not kept in mind. A careful history is essential and the onset of abdominal pain following injury or exertion, no matter how slight, should make one suspicious of a hematoma.[17] The presence of ecchymosis is of diagnostic importance but is usually a late manifestation. The two pathognomonic signs of considerable diagnostic value are: (1) a non-movable palpable mass when strain is placed on the abdominal musculature,[2,8,17] and (2) the absence of rigidity and tenderness in the abdominal wall adjacent to the palpable mass.[14,16]

The incidence of a correct preoperative diagnosis is relatively low. In a combined review, totaling 187 cases[5,7,13,17] in which a diagnosis was stated, a correct diagnosis was made in only twenty-one (10.7 per cent) of the cases. This condition is confused with a wide variety of both intra- and extraperitoneal processes, such as appendicitis, ovarian cyst and tumor, ectopic pregnancy, hernias of various sorts, mesenteric thrombosis, intestinal obstruction, gall-bladder disease, leiomyoma of the uterus, hydronephrosis, ruptured viscus, tumor of the abdominal wall, tetanus and the more rare conditions of gumma, actinomyocosis and tuberculosis.[3,5,9,17]

Treatment

Spontaneous recovery undoubtedly occurs.[2] The symptoms are so often indistinguishable from that of an intra-abdominal condition and the fact that bleeding tends to recur, makes an exploratory laparotomy the procedure of choice.[2,17] The prognosis in general is favorable but carries a certain mortality in elderly and debilitated individuals with an over-all mortality of 4 per cent in a collective review of 100 cases.[17]

Conclusions

1. The symptoms in both cases simulated a intra-abdominal condition.
2. The etiology in the first case was repeated trauma to the lower abdominal wall from the operation of a lathe. An uneventful recovery followed an exploratory laparotomy with ligation of a bleeding vessel.
3. The fall in the second case was undoubtedly the etiologic factor. Death in this case was the result of traumatic shock. The exploratory laparotomy added insult to injury and there was apparently a recurrence of bleeding.
4. A review of the literature is presented.

References

1. Ashkar, P. A.: Spontaneous rupture of right rectus muscle in pregnancy. Lancet, 2:934-935 (Oct. 28) 1939.
2. Block, B. M., and Stalker, L. K.: Spontaneous hemorrhage into the sheath of the rectus abdominis muscle. Proc. Staff Meet., Mayo Clin., 206-208 (Mar. 27) 1940.
3. Broady, H.: Spontaneous hematoma of the rectus abdominis muscle simulating twisted ovarian cyst and hernia. Meridan Hosp. Bull., 21-23 (Apr.) 1951.
4. Brodel, M.: Lesions of the rectus abdominis muscle simulating an acute intra-abdominal condition. Bull. Johns Hopkins Hosp., 61:295-315 (Nov.) 1937.
5. Browers, W. F., and Richards, N. F.: Rectus muscle strain simulating acute appendicitis. Mil. Surgeon, 92:645-648 (June) 1943.

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THE LUMBO-DORSAL FASCIA AND CHRONIC BACKACHE

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RECENT clinical observations have revealed additional information on abnormalities of the lumbo-dorsal fascia in individuals with back disability. The anatomical derangements of the fascia and contiguous structures, combined with the resulting physiologic disorders, appear to provide a relationship which clarifies the clinical features and simplifies treatment. In addition, an explanation has become available for a variety of clinical pictures affecting upper portions of the body.

Anatomical Considerations

In the lumbar region, the lumbo-dorsal fascia consists of a dorsal and a ventral layer, enclosing the sacrospinalis muscle. The dorsal layer is attached to the spinous processes and the ventral layer to the transverse processes of the vertebrae. In the sacral region, only the dorsal layer is present, attached medially to the spinous processes of the vertebrae and laterally to the sacrum.

In the angle formed by the dorsal and ventral layers of the fascia, fat tissue is located, overlying the lateral portion of the sacrospinalis muscle. In the sacral region a similar relationship is provided in that the fat lobules are situated between the fascia dorsally and the sacrospinalis muscle ventrally. The fat tissue at these sites represents portions of the "basic fat pattern" described by Copeman and Ackerman.[1] Although the basic fat pattern is said to be a constant feature, in two instances no fat tissue was found in the lumbar region.

The latissimus dorsi muscle is of importance for the reason that a portion of its aponeurosis of origin is attached to the lumbo-dorsal fascia.[5] It is also stated that "although the fascia becomes considerably thinner after it ceases to be the aponeurosis of the latissimus, it usually still contains distinct tendinous slips."[7] There is reason to believe that these tendinous prolongations extend over the dorsal surface of the lumbo-dorsal fascia throughout the lumbar and sacral regions.

Whereas earlier reports[2,3,4] have considered the entire extent of the basic fat pattern as sources of painful impulses, more recent studies on structural abnormalities have revealed a marked predilection for injuries of the fascia at two sites: the midsacral paraspinal region, and the midlumbar region over the lateral portion of the sacrospinalis muscle. The vulnerability of the former site is explainable by the attachment of a portion of the gluteus maximus, the latter by the origin of a portion of the latissimus dorsi muscle. For practical clinical purposes, these two sites of the fascia merit most attention.

The principal pathologic changes seen at operation consist of scar formation between the lumbodorsal fascia and the subfascial fat. The fascia, at the site of injury, may be thickened but is more often thin and distended. In three instances, a complete defect was present in the fascia, about 4 to 5 millimeters in diameter but not occupied by protruding fat tissue as described by Copeman and Ackerman. In two cases in which the injury was three to four weeks old, the fascia was dark red in color and irregularly torn.

Under normal conditions, the subfascial fat is free from the fascia and presents the characteristic yellowish color of fat tissue elsewhere. After the fascia has been traumatized by partial or complete tears, with subsequent healing the subfascial tissue shows a grayish-white color and is frequently attached to the ventral aspect of the fascia. Microscopically, prolongations of fibrous tissue can be seen extending for a considerable depth from the fascia into the fat tissue layer which has become extensively fibrosed.

With recognition of this form of abnormality, it becomes necessary to modify earlier descriptions of pathologic change, consisting of herniation and edema of subfascial fat. The impression is gained that edema of fat lobules is a secondary effect produced reflexly by the pain impulses arising elsewhere. Nevertheless, removal of such tissues, as it was carried out in the earlier stages of this investigation, has provided significant and lasting relief of pain. Complete herniations, as described by Copeman and Ackerman, have been found in only one case.

The mechanism of pain production is explained by the anatomic changes. The subfascial fat, evidently arising from the sacrospinalis muscle, seems to serve the same purpose as bursae in other locations. Traction on the fat lobules, which are well supplied with nerves and blood vessels, causes pain, as has been repeatedly demonstrated at operation. When the fat tissue becomes fibrosed and attached to the ventral aspect of the lumbo-dorsal fascia, traction on the fat lobules is more or less continuous. Both the traction and the resulting pain are aggravated by motion of the body.

Physiologic Aspects

Telalgic phenomena (referred pain and referred tenderness) are noted in practically all cases of injury to deep somatic structures. Although our knowledge of these effects is incomplete, a few well-defined principles have been established and found to be of practical importance in the evaluation of painful syndromes.

Referred pain is considered as misinterpretation by the central nervous system. It is initiated and abolished almost simultaneously with the onset and elimination of pain impulses at the primary source of the pain, or trigger-point. Referred tenderness is believed to be due to deposit of metabolites in the affected tissues. This process requires a longer period of time, usually a matter of several hours, for development after the onset of noxious stimuli and also for subsidence after cessation of the irritation. Both of these phenomena may occur in any portion of the sclerotome—a term used by Inman and Saunders[6] to denote the distribution of sensation from a spinal nerve root to deep somatic structures. Likewise both are limited to the extent of the sclerotome in which the impulses arise, although contralateral reference is a common observation, the distribution corresponding approximately to that found on the injured side of the body.

The skin is less frequently involved in cases of injury to skeletal structures. The dermatomic supply varies considerably from the sclerotomic distribution. When sensory disorders of the skin develop, they present varying degrees of hypoesthesia, even anesthesia, of the annular or "glove and stocking" type. Sensory disorders of this kind are not uncommon although they are rarely mentioned by the patient unless they become marked in degree.

When a painful lesion occurs in the lumbo-dorsal fascia in the midsacral paraspinal region, it lies within the sclerotome of the first sacral nerve. When the midlumbar region over the lateral portion of the sacrospinalis muscle is the site of an injury, the pain is experienced within the sclerotome of the second lumbar nerve or, rarely, the third lumbar. Identification of the sclerotomes related to these sites was made from the pain charts of Inman and Saunders.[6]

Following observations in two patients[2] in whom pain in the upper portions of the back was relieved by correction of the disability in the lower part of the back, it was subsequently established that this is a very common association. The mechanism involves the latissimus dorsi muscle which is in close anatomical relationship with the lumbo-dorsal fascia, particularly in the midlumbar region. With irritation of the tendinous prolongations of the aponeurosis of origin of this muscle, referred phenomena are transmitted upward within the sclerotomes of the sixth, seventh and eighth cervical nerves which supply numerous structures in the upper part of the body.

Clinical Features

With knowledge of the anatomic lesions of fat, fascia and muscle, together with application of accepted principles of referred phenomena, it is considered possible to evaluate the majority of cases of back disability quickly and accurately. The diagnosis is made from the usual history given by the patient, the description and location of the pain by the patient and the areas of hyperalgesia determined by palpation. Verification of the trigger-point is then obtained by injection of local anesthetic. Roentgenographic examination is necessary for identification or exclusion of organic disease of the bones and joints.

Classification of the various pain complexes affecting the back and the extremities can be made most clearly on an anatomical basis—the site of origin of the pain together with identification of the afferent nerve supply to the structures from which the pain arises.

The Midsacral (First Sacral Nerve) Syndrome.—When this is found in isolated form, the complaint of the patient is pain in the lower part of the back, the buttock and the lateral and posterior aspects of the thigh. Sometimes the pain is also noted in the outer part of the leg and foot. On examination, the chief finding is a diffuse tenderness in the lower two-thirds of the buttock. The trigger-point is almost invariably to be found in the paraspinal region of the third sacral vertebra.

Tenderness at the latter point may be moderate or marked in intensity, with or without radiation of the pain to other portions of the sclerotome. It may on the other hand, be elicited only on heavy pressure. Frequently a nodular mass of soft tissue can be palpated and identified as the source of the pain. The suspected lesion is verified by diagnostic injection of a local anesthetic.

The midsacral paraspinal region is apparently also the location from which pain may be referred to the coccyx, to produce the clinical picture of coccygodynia.[4]

The Midlumbar (Second Lumbar Nerve) Syndrome.—In this the chief complaint is pain in the lower part of the back, located in the lower lumbar, the upper sacral and the sacroiliac regions. Referred pain to the lower extremity, when present, is located in the groin and the adductor region of the thigh. Tenderness may be elicited at either of these areas, more commonly in the lumbar and sacral regions. The trigger-point is to be found in the midlumbar region over the lateral portion of the sacrospinalis muscle. This is substantiated by injection of local anesthetic into the subfascial tissues at the latter point.

The Latissimus Dorsi (Sixth, Seventh and Eighth Cervical Nerve) Syndrome.—Attention was called to this structure by statements of patients that they were relieved of pain in the upper portions of the body following operations in the lumbar and sacral regions.[2] The symptom-complex, developing apparently from painful irritation of the tendinous slips of origin from the lumbodorsal fascia, may present a wide variety of manifestations, subjective and objective, throughout the entire extent of the latissimus dorsi, the scapular region, shoulder, upper extremity, neck and chest. The more common complaints of the patient are pain and weakness in the scapular region and the shoulder. Tenderness is found frequently in those locations. The trigger-point is located at the site of injury of the lumbodorsal fascia in the lumbar and sacral regions. Anesthetization of this must be carried out in the superfical layers of the fascia, by interruption of the painful impulses arising in those portions of the latissimus dorsi muscle.

Headache as a symptom related to low back pain has been described in a group of seven cases.[3] Since then it has been found to occur as a common manifestation associated with disabilities due to fat and fascial lesions in the lower part of the back. The impulses arising in the tendinous fibers of origin of the latissimus dorsi muscle produce referred pain and referred tenderness in those portions of the paraspinal muscles which are innervated by the sixth, seventh and eighth cervical nerves. If it is accepted that pain and spasm of those muscles at the base of the neck are capable of producing the pain which is interpreted as headache, then it is explainable as a referred pain.

Combined Syndromes.—While each one of the individual syndromes may occur in the isolated and uncomplicated form, in many instances various combinations are found in the same patient. This is readily understandable when it is considered that the tendinous prolongations of the aponeurosis of the latissimus dorsi muscle may extend distally over the entire lumbodorsal fascia. Any injury of the fascia would be likely to include also some damage to the fibers of the tendon attached to it. Under those conditions two different streams of impulses are set up as referred phenomena: one to the second lumbar or first sacral nerve field, the other to the sclerotomes of the sixth, seventh and eighth cervical nerves. When the combination consists of the first sacral and the latissimus dorsi syndromes, the manifestations in the upper parts of the body are relatively mild in degree. The more serious types of clinical pictures are derived from a combination of the second lumbar and the latissimus dorsi syndromes. Finally, the three syndromes may be combined in the same patient.

Treatment

The indications for treatment were clarified with the discovery of the more definite pathologic changes. Recognition of the predilection for two sites of injury simplified the problem. It became obvious that only surgical measures could be employed with expectation of relief.

The technique is similar for the sacral and the lumbar regions. Under local anesthesia of the skin, a transverse incision is made over the trigger-point. The lumbo-dorsal fascia is exposed by freeing the subcutaneous fat. The fascia is incised vertically. The subfascial tissues, if adherent, are dissected from the ventral aspect of the fascia and removed. It is difficult to formulate any rule regarding the extent of resection of the fat tissues. It has become the practice to remove the layer of subfascial tissue which is obviously fibrosed, and to leave the normal fat tissue intact. Caution is necessary to avoid injury to the sacrospinalis muscle. The fascia is usually approximated with sutures, leaving an adequate opening for a soft rubber drain to be inserted into the operative field. The drain is left in place for five to seven days. Discharge of sero-sanguinous fluid continues usually for three to four weeks until the sinus is healed. If drainage is inadequate, the accumulation of bloody fluid becomes troublesome and will require evacuation.

In some cases the fascia is too thin to permit suturing; the results appear to be fully as satisfactory as in the cases in which suturing can be successfully carried out.

In cases of isolated latissimus dorsi syndrome, the incision is carried down to the fascia, the tendinous fibers of the aponeurosis are resected transversely, bleeding points are ligated and the incision is closed. A small drain is inserted for a period of twenty-four to forty-eight hours.

When the latissimus dorsi syndrome occurs in combination with either or both of the other syndromes, it requires no special attention. It appears, from the clinical results, that these fibers form part of the anatomical derangement of the fascia and any abnormality which involves these elements is simultaneously corrected.

Depending on the nature and the extent of the operative procedure, patients may leave the hospital one to three days after the operation.

Since the previous report on ten cases,[2] operations have been performed on fourteen additional patients. The type of disorder and the results in these may be classified as follows:

Midsacral syndrome—three cases—complete relief.

Midlumbar syndrome—one case—complete relief.

Latissimus dorsi syndrome—two cases—complete relief.

Midsacral and latissimus dorsi syndromes—two cases—complete relief in one; in the other, incomplete relief due to adherent, painful scar.

Midlumbar and latissimus dorsi syndromes—one case—complete relief.

Three syndromes combined—five cases. In three of these, operation was carried out in the midsacral and midlumbar regions at the same time, with complete relief in all; in one, complete relief was obtained by two separate operations; in one, partial relief was obtained, but patient refused further treatment; result is considered a failure.

Comments

From an analysis of this group of patients, several features are of sufficient importance to require emphasis. In all cases the operation was performed at one or both sites of the lower part of the back which are considered particularly vulnerable to injury. In four cases, operation was performed at both sites; in one of the latter it was bilateral. Distinct pathologic changes were found in the lumbo-dorsal fascia and the subfascial tissues in all instances except those in which the clinical picture was that of the latissimus dorsi syndrome. Clinical manifestations in the upper portions of the body, representing the latissimus dorsi syndrome, were present in ten of the fourteen patients. These were relieved in all instances except one in which additional treatment could not be carried out. Chronic head pain in six cases and attacks of dizziness in two were eliminated. Relief of disability is usually prompt so that the outcome can be determined with reasonable accuracy within a few days. Depending on the nature of the work, patients may resume such activity in one to six weeks after operation. "Complete relief" as used here, enabled the patient to return to his former, or similar, types of work, with little or no handicap.

Summary

A review is made of fourteen cases of low back pain treated surgically.

The anatomical lesions consisted of scar formation between the lumbo-dorsal fascia and subfascial fat at one, or both, of two sites in the lower part of the back: the midsacral paraspinal region and the midlumbar region over the lateral portion of the sacrospinalis muscle. The initial injury is probably a tear of the fascia produced by muscle action.

The physiologic disturbances which result from these lesions consist of referred phenomena—pain and tenderness. Knowledge of the mechanism of these processes is essential for proper evaluation of the clinical manifestations.

Clinically, three different syndromes can be recognized: the midsacral or first sacral nerve, syndrome; the midlumbar, or second lumbar nerve, syndrome; the latissimus dorsi syndrome, in which the clinical picture is dominated by manifestations within the sclerotomes of the sixth, seventh and eighth cervical nerves. Each of these syndromes may appear in isolated form. Combinations of two, or all three, syndromes in the same patient are more common.

Surgical treatment, consisting of correction of the structural changes, has yielded results which are highly satisfactory.

References

1. Copeman, W. S. C., and Ackerman, W. L.: Edema or herniations of fat lobules as a cause of lumbar and gluteal "fibrositis." Arch. Int. Med., 79:22-35 (Jan.) 1947.
2. Dittrich, R. J.: Subfascial fat abnormalities and low back pain. Minnesota Med., 33:593-596 (June) 1950.
3. Dittrich, R. J.: Headache related to low back pain. Journal-Lancet, 71:47-48 (Feb.) 1951.
4. Dittrich, R. J.: Coccygodynia as referred pain. J. Bone & Joint Surg., 33-A: 715-718 (July) 1951.
5. Grant, J. C. B.: The musculature. In Morris' Human Anatomy, ed. 10, edited by J. Parsons Schaeffer. Philadelphia: Blakiston Co., 1942.
6. Inman, V. T., and Saunders, J. B. de C. M.: Referred pain from skeletal structures. J. Nerv. & Ment. Dis., 99:660-667 (May) 1944.
7. Sobotta, J., and McMurrich, J. P.: Atlas and Textbook of Human Anatomy. Vol. 1. Philadelphia: W. B. Saunders Co., 1906.

FUNCTIONAL NEUROPSYCHIATRIC DISORDERS

(Continued from Page 143)

in biological learning (ontogenetic) the shift is upward. In the devolutionary process of disease either functional or morphological, the shift is downward and is termed regressive." Therefore, when we are psychologically repressed, we are neurologically inhibited. Psychological repression can be and probably always is accompanied by neurological inhibition.

I believe that the "incomplete" reactions which have been described are due to repression and inhibition, which are the result of either overt or latent anxiety.

Conclusion

1. There is no clear-cut dividing line between "functional" and "organic" nervous diseases.

2. However, most disorders are either predominantly "functional" or predominantly "organic."

3. The diagnosis of a predominantly functional nervous disorder can be made on the presence of objective signs.

4. Some of these signs are described.

References

1. Cobb, Stanley: Borderlands of Psychiatry. Cambridge: Harvard University Press, 1944.
2. Grinker, Roy R.: A comparison of psychological "repression" and neurological "inhibition." J. Nerv. & Ment. Dis., 89:765-781, 1939.
3. King, Lester S.: The meaning of medical diagnosis. Etc., A review of general semantics, 8:202-211, 1951.

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6. Coleman, E. P., and Bennett, D. A.: Spontaneous hemorrhage into the sheath of the rectus abdominis muscle. Illinois M. J., 80:292-295 (Oct.) 1941.
7. Culbertson, C.: Hematoma occurring spontaneously in sheath of rectus abdominis muscle. J.A.M.A., 85:1955-1958 (Dec. 19) 1925.
8. Fothergill, W. E.: Hematoma in abdominal wall simulating pelvic new growth. Brit. M. J., 1:941-943, 1926.
9. Halperin, G.: Spontaneous hematoma of the abdominal wall. Surg., Gynec. & Obst., 47:861-863 (Dec.) 1928.
10. Hobbs, F. B.: Fatal hemorrhage into rectus abdominis muscle during pregnancy. Brit. M. J., 1:895-896 (Apr. 23) 1938.
11. McCarty, R. B.: Spontaneous hematoma of the rectus abdominis muscle. Am. J. Surg., 23:480-483 (Mar.) 1934.
12. Mailes, R.: Spontaneous hematoma of abdominal wall. Brit. M. J., 1:637-639 (Mar. 28) 1936.
13. Maxwell, A. F.: Spontaneous hematoma of the abdominal wall in women. California & West. Med., 30:407-410 (June) 1929.
14. Payne, R. L.: Spontaneous rupture of the superior and inferior epigastric arteries within the rectus abdominis sheath. Ann. Surg., 108:757-767 (Oct.) 1938.
15. Perman, E.: Hematoma in the sheath of the musculus rectus abdominis. Acta chir. Scandinav., 54:434-454 (Apr.) 1922.
16. Strenger, G.: Spontaneous hemorrhage into the rectus abdominis muscle simulating acute intra-abdominal conditions. Am. J. Surg., 55:594-596 (Mar.) 1942.
17. Teske, J. M.: Hematoma of the rectus abdominis muscle. Am. J. Surg., 71:689-695 (May) 1946.
18. Ward, C. F.: Rupture of rectus abdominis muscle. U. S. Nav. M. Bull., 44:515-518 (Mar.) 1945.
19. Wohlgemuth, K.: Uber de subcutane Rupture des M. rectus abdominis und der Art. epigastrica. Arch. f. klin. Chir., 122:649-659, 1923.
20. Zohman, B. L.: Spontaneous hematoma of the rectus muscle, in a case of acute alcoholism and acute nephritis. M. J. & Rec., 137:232-234 (Mar. 15) 1933.

THE MINNESOTA PROGRAM FOR THE CONTROL OF BRUCELLOSIS

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THE control of brucellosis in domestic animals has been of major concern to the State Live Stock Sanitary Board for more than thirty years. Progress at first was slow, but with the increasing realization by the livestock industry of the tremendous economic loss caused by this disease, and with the knowledge that the disease is transmissible to human beings and is now a public health problem, it has been possible to steadily increase the tempo of the eradication program. Popular demand for the eradication of this disease was particularly stimulated by action taken in recent years by the health departments in certain municipalities, serving notice on producers of dairy products, that after a certain date, milk and cream products, to be sold within their respective municipalities, must originate from herds free from brucellosis. In order to maintain their market, dairymen now realize they must get their house in order and are demanding that brucellosis of cattle be eradicated as rapidly as possible.

Livestock owners and livestock sanitarians realize that it is impossible to eradicate brucellosis from dairy herds unless it is eradicated from all cattle, including beef herds in the areas where dairy herds are maintained. Because of the tremendous movement of cattle in the United States from areas where beef cattle are raised, to the middle west where they are finished for beef, and because these feeding areas are usually in close proximity and often on the same farms where dairy herds are maintained, it is very necessary that the disease control officials of all states where dairying is a large project require that importation of livestock into their respective states be free from this disease. This in turn has resulted in a demand by breeders in the beef-raising states, for the elimination of bovine brucellosis, not only to reduce direct financial losses caused by the disease in their own herds, but to protect the market for feeding cattle in the midwest farming states. There has thus developed a nationwide movement for the eradication of brucellosis from the domestic animals of this country.

Minnesota has been in the forefront in this effort to eradicate this serious disease of domestic animals and human beings for many years. In 1939, the State Legislature enacted a law to provide for the eradication of brucellosis from cattle under the Area Plan, based on a similar plan which had proven so successful in the eradication of bovine tuberculosis. A number of states have enacted similar laws. The Minnesota law has been amended slightly since its original enactment, and it is believed that at the present time it provides for the most practical, orderly and systematic plan for the eradication of brucellosis of any such law in the United States. The amendments since the original law was passed have been made to adapt the law to the peculiarities of brucellosis which naturally differ in some respects from tuberculosis.

Excellent progress was made in extending the Area Plan of control after it was enacted until the advent of World War II. During the war and the unsettled conditions which followed and still exist, numerous factors, including the tremendous increase in the value of livestock and the shortage of veterinarians, have tended to delay the eradication program.

Another factor also entered the picture in 1942 which has actually delayed the eradication program, although, if properly interpreted and used, it can be of great value. I am referring to the vaccination of cattle against brucellosis, which was recommended as an adjunct to other control measures by the Bureau of Animal Industry of the United States Department of Agriculture in December of 1941. The Bureau of Animal Industry, which had developed the vaccine recommended and still in use, has emphasized at all times that this product was to be used as a supplementary procedure only, and could not in itself bring about satisfactory eradication. Nevertheless, advantage was taken of the announcement of a successful vaccine by commercial interests producing and selling the product, as well as by some segments of the livestock industry and cer-

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Read at the Minnesota Public Health Conference, Minneapolis, Minnesota, September 28, 1951.

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tain veterinarians seeking an easy and painless method of eradicating the disease. The farm journals for several years carried misleading advertisements and article after article by uninformed persons making unjustified claims as to the value of the vaccine and the unreasonableness of the regulations requiring restraint or disposal of infected animals. Much confusion ensued and for some ten years has resulted in a definite setback to the nationwide efforts to eradicate this disease. Only during the last few years has it become generally recognized that the recommendations of the Bureau of Animal Industry, when the vaccine was first introduced, were sound and that the use of vaccination was an adjunct to other control measures. If used in this manner, it can be and is of great value, and is used extensively in the program in this state.

During the period of confusion above mentioned, there was a definite loss of ground in some states in the control of brucellosis. I am proud to report that the program in Minnesota has progressed steadily although rather slowly during the war years. Furthermore, we are today in a position to increase the program for eradication as rapidly as funds are provided by the legislature without materially changing our laws, regulations or procedures.

As above stated, the eradication of brucellosis is the goal in this state, and our program is based primarily on the Area Plan. Briefly, this plan consists in applying the agglutination blood test to all cattle in a county; the proper disposal of reactors, the quarantine of infected herds, the prevention of the importation of infected animals, and the systematic retesting until the disease has been eradicated.

The Uniform Methods and Rules of the Bureau of Animal Industry, United States Department af Agriculture, and the rules and regulations of the Live Stock Sanitary Board provide that when a test of all cattle in a county reveals the incidence of infection to be less than 1 per cent and the infected animals are found in less than 5 per cent of the herds, the county may be declared a Modified Certified Brucellosis-Free Area for a period of three years. Such declaration, however, does not complete the program. All infected and suspect herds must be retested at frequent intervals until all infected herds have passed three consecutive negative tests and until any herds in which infection is disclosed or suspected because of clinical evidence have been tested and the status of such herds determined. At the end of the three-year period of certification, the entire county is again retested and if the incidence is found sufficiently low, the county is recertified.

In order to put this plan into effect, it is necessary under the law for 67 per cent of the cattle owners to petition the Live Stock Sanitary Board. There are now thirty-six of the eighty-seven counties which have adopted the plan, and twenty-three of those counties have been declared Modified Certified Bang's Disease-Free Areas.

Progress in the area control of Bang's disease has been accelerated during the last three years by the adoption of the so-called ABR or ring test of milk and cream. This test is again a measure to supplement other procedures, and with our present knowledge cannot be satisfactorily used as a substitute. Here, again, there is grave danger that confusion may develop due to placing unjustified reliance on this measure to the exclusion of other methods of diagnosis which have proved so satisfactory in the control program to date. Where properly used, it not only allows sanitary officials to do a better and quicker job of eradication, but reduces the cost of such procedures to some extent. The role the ring test should play, in my opinion, is to discover new centers of infection which may occur from time to time in any area where the control program is in progress, due to various causes, more often than not to violations of quarantines or illegal importations. The test is not sufficiently accurate to constitute a means of officially determining the status of a herd or an individual animal, and if used in such a manner, only disappointment will result and consequently delay in the eradication procedure.

The State of Minnesota has not confined its efforts in the control of brucellosis to the eradication program under the Area Plan. Provisions have been made whereby any cattle owner may receive credit through certification of his herd, if at his own expense he eradicates and maintains his herd free from brucellosis. Also regulations have been in effect for many years requiring that cattle imported into the state must be tested and found free from the disease.

In 1945 the State Legislature enacted a law whereby all cattle over six months of age, except steers, before being sold or offered for sale for any purpose excepting for immediate slaughter or consignment to a public stockyards, must be tested and found free from Bang's disease, with two exceptions. These exceptions were cattle located in Modified Certified Bang's Disease-Free areas and cattle owned by the seller since birth. The theory on which these exceptions were based was, first, that all infected herds in counties which have adopted the Area Plan are presumed to be under quarantine, and no cattle can legally be removed therefrom except under permit from the Live Stock Sanitary Board, and, second, that cattle raisers should not be required to conduct the test before selling such cattle provided they could not be resold by dealers and traders after purchase, except for immediate slaughter. These exceptions were, however, abused in many instances, and the 1951 Legislature amended the law to delete these two exceptions and also to provide means whereby cattle legally and officially vaccinated might be sold in accordance with the rules and regulations of the Live Stock Sanitary Board without a Bang's disease test. The 1951 law is now in effect. Rules and regulations have been adopted by the Board and it is hoped that the provisions providing for the sale of vaccinates will be practical. It surely will be, if we have the co-operation of the livestock industry and the practicing veterinarians of the state on whom we must depend for its efficient operation.

Because of the warning given by certain municipalities, particularly the City of Chicago, that after a specified date only milk and milk products produced by brucellosis-free cattle may be sold within the municipality, the Minnesota Live Stock Breeders Association and the Minnesota Farm Bureau conferred with Governor Youngdahl in regard to the urgent need of expediting the eradication program in Minnesota. Governor Youngdahl appointed an advisory committee on brucellosis. This committee included representatives from all producing agencies and others interested in the eradication of the disease, including representatives of the State Department of Health and the State Live Stock Sanitary Board. A legislative program was prepared by this committee. One of the principal recommendations was an increased appropriation for the purpose of extending the area program to the entire state within the next few years. The Live Stock Sanitary Board prepared an estimate of the funds needed for the next biennium to carry out the first two years of this program. A special appropriation bill was introduced in both the House and Senate. The State Senate passed the bill unanimously, but it failed of passage in the Appropriations Committee of the House. It was killed in that committee. It is evident that satisfactory progress towards this statewide program cannot be made during the present biennium. Every effort will be made to use the funds now available to the best advantage and to extend the work as rapidly as possible, but if the entire state is to be placed under an eradication program within the deadline set by the City of Chicago and some other municipalities, it will be essential that the next legislature take action to materially increase the funds available. Their failure to do so in the 1951 session, while a serious setback to the program, need not be fatal if the legislature in 1953 will provide sufficient funds. Veterinary personnel is steadily increasing, the demand of the livestock producers is insistent, and it is believed fully possible to extend the work if only funds are made available.

Records of the State Department of Health indicate that approximately 85 to 95 per cent of the cases of brucellosis in human beings in Minnesota are caused by brucella abortus or the type of brucella organisms derived from cattle. There is, however, a material number of cases caused by brucella suis and brucella melitensis, both of which in Minnesota are caused by exposure to infected swine. Our organized control program at the present is confined to cattle. The Live Stock Sanitary Board has now under consideration the adoption of regulations for the control of brucellosis in swine based on recommendations of the United States Livestock Sanitary Association. It is not believed that brucellosis in swine is now as prevalent as the disease in cattle, nor is it as difficult to eradicate. It is possible that in the near future some additional legislation may be required, but it does not seem advisable to request such legislation until initial steps are taken through regulations to provide for certified brucellosis-free herds of breeding swine. It is hoped that this program will be in effect within a very short time.

President's Letter

THROUGH ORGANIZATION TO SERVICE

A very significant indentification card has undoubtedly been delivered to you by this time—your membership certificate from the Minnesota State Medical Association, which also indicates your inclusion in the ranks of your local medical society.

In recent years there have been varying evaluations of organized medicine, appraisals so heated that oftentimes we have used substitute phraseology for "organized medicine," to blunt the criticism directed against us on that basis. The term organized medicine, twisted into a definition of bigotry, self-interest, and monopoly, by the proponents of government health insurance, nearly met the fate of permanent identification with this description.

However, through the national education campaign, the campaigns conducted by state and county medical societies and a doctor-to-patient informational exchange, the public has been swerved from a hasty acceptance of the propaganda against the organizations of the medical profession.

In justifying organized medicine to the public, we have, ourselves, come to a clearer understanding of the purposes and ideals of the three-level organizational structure of medicine and a greater appreciation of the facilities it affords for furthering medical standards and protecting public and profession alike from health-profiteers.

Each level of membership—county, state and national—as you know, offers unique advantages to the physician: not only is his position with the public enhanced by the profession's official symbol of approval, but he is afforded a myriad of opportunities to become better able to serve his patients. Through his medical affiliation he is offered post-graduate education, the opportunity to work, with other physicians, on the scores of committees that are striving in a practical, yet progressive, fashion to solve the problems that impede the way toward increasingly better public health records. He has available, in central locations, information and literature of subjects ranging from flat feet to voluntary health insurance. He can check the efficacy of a new drug, obtain a speaker for a medical meeting, order a packet of material to help him in writing a scientific paper, sign up for an insurance policy at lower-than-individual rates, obtain assistance in legal difficulties, book an education film, receive a list of available physicians from which to choose a partner or an associate. But all these advantages and many more are familiar to you, as a member of organized medicine.

In recounting the purposes and merits of these organizations, however, we must continually bear in mind that none of the three, neither the county, nor the state, nor the American Medical Association exists as an entity unto itself. The organizations are interwoven and, although autonomous, are interdependent and, more particularly, they are dependent for their continued successful record of service upon active participation, utilization, and endorsement by every member. We cannot content ourselves with mere acceptance of the functions of medical societies—we must vigorously and consistently support and implement those functions, helping to adapt them to each new turn of events, each new challenge and demand upon the profession. You have only begun to assume your rightful reponsibilities when you pay your dues and accept the certificate of membership.

Roger L J Kennedy

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

NARCOTIC ADDICTION ON THE INCREASE

THE ALARMING INCREASE in narcotic addictions, particularly in the youth of our larger cities, should be emphasized and exposed to the full glare of publicity.

Certain facts about drug addition should be given to the public in order to know how best to attack the problem. It is perhaps not widely recognized by the profession that the smoking of marihuana cigarettes provides the start for most narcotic addicts. With youthful recklessness and the mistaken idea that to smoke this weed is smart, the misstep is taken that leads to more serious and irretrievable addiction. While the smoking of marihuana causes a form of intoxication that is harmful, discontinuance of its use is not accompanied by serious withdrawal symptoms. The most serious aspect of its use is that it so often leads to the use of heroin or morphine. In the search for new thrills (so-called), the youngster tries the sniffing of heroin and for further, more effective use, tries the intravenous administration of small doses of heroin. Habitual use leads to the requirement of larger and larger doses of this expensive narcotic which is no longer sold by druggists or prescribed by physicians but is bartered entirely by members of the underworld at exorbitant prices. The habit gets such a hold on the addict that he will do anything to obtain the drug or obtain the cash needful to buy his supply. The addict, as is well known, loses his moral sense of right and wrong, and will lie or steal or resort, in the case of the lesser percentage of girls who constitute the unfortunate group, to prostitution in order to obtain necessary funds.

According to *Today's Health* for October, 1951, in Chicago alone the State Attorney's office processed 3,126 addicts in six months. On one day recently, one-fourth of the prisoners in Cook County jail in Chicago were addicts, ninety-two under twenty-one, 108 between twenty-one and twenty-five and ninety-five over twenty-five. Admissions to the two Federal hospitals for addicts rose from 2,700 in 1949 to 4,500 in 1950. The addicts in these hospitals under twenty-one jumped from twenty-two in 1947 to 440 in 1950. Boys outnumber girls six to one.

The hold that narcotics get on their victims is difficult to imagine, and perhaps impossible to imagine for anyone not an addict. Release of the addict from the bonds of the habit is the exception rather than the rule. For this reason, prevention of the commerce in narcotics except for medicinal purposes, and of heroin for all purposes, lies in the field of national control. Physicians must aid Uncle Sam's preventive activities to the utmost. How insidious and powerful drug addiction can be is evidenced by the regrettable fact that many physicians allow themselves to become addicted to one narcotic or another, and demerol seems to be a favorite.

Punishment is and should be severe for those convicted of underground traffic in narcotics. The exposure being made in the public press of the insidious dangers accompanying the trifling with narcotics should be of value in a preventative campaign.

A NEW TECHNIQUE FOR ARTIFICIAL RESPIRATION

IN THE September 1951 number, we mentioned the undesirable features of the Schaefer and Sylvester methods of artificial respiration. With the former method, the air is forced out of the lungs and the entirely passive recoil of the chest on the relief of the pressure results in a small amount of air being inspired, while the inhalation of air, with the Sylvester method, is an active process as well as the exhalation. The disadvantage of the latter method is that the tongue has to be seized by a forceps or a safety pin and pulled forward to avoid the swallowing of the tongue. Most of us do not carry a forceps or safety-pin with us, and time is of the essence when artificial respiration is needed.

In view of the drawbacks possessed by both these methods, it is not surprising that a third method has been devised and adopted, largely through the efforts of the American Red Cross.

In 1947, the American Red Cross requested the Council of Physical Medicine of the AMA to review the problem. A committee of the Council reported that the Schaefer method taught for years by the Red Cross was inferior to other methods. As a result, the Red Cross made grants during 1948 and 1949 to evaluate various methods. After studying air exchange induced by artificial respiration in animals and human beings, it was decided that the back pressure—arm lift method used for many years in Europe, especially in Denmark and Norway, was comparatively easy to learn and perform and produced a satisfactory volume of tidal air. The military consultants in June, 1951, recommended to the armed forces that they adopt this method. In October, 1951, at a meeting of the National Research Council, at which a number of agencies such as the Red Cross, the AMA, the Army, Navy and Air Force were represented, the back pressure-arm lift method originally described by Holzer Nielsen was decided upon as being the preferable one. The standard technique, as described by the Red Cross, is as follows:

Standard Technique for the Back Pressure-Arm Lift Method of Artificial Respiration

The Standard Technique, agreed upon by a committee appointed at the meeting of agency representatives on October 2, is as follows:

(Position of the Subject)

1. Place the subject in the face down, prone position. Bend his elbows and place the hands one upon the other. Turn his face to one side, placing the cheek upon his hands.

(Position of the Operator)

2. Kneel on either the right or left knee at the head of the subject, facing him. Place the knee at the side of the subject's head close to the forearm. Place the opposite foot near the elbow. If it is more comfortable, kneel on both knees, one on either side of the subject's head. Place your hands upon the flat of the subject's back in such a way that the heels lie just below a line running between the armpits. With the tips of the thumbs just touching, spread the fingers downward and outward.

(Compression Phase)

3. Rock forward until the arms are approximately vertical and allow the weight of the upper part of your body to exert slow, steady, even pressure downward upon the hands. This forces air out of the lungs. Your elbows should be kept straight and the pressure exerted almost directly downward on the back.

(Expansion Phase)

4. Release the pressure avoiding a final thrust, and commence to rock slowly backward. Place your hands upon the subject's arms just above his elbows, and draw his arms upward and toward you. Apply just enough lift to feel resistance and tension at the subject's shoulders. Do not bend your elbows, and as you rock backward the subject's arms will be drawn toward you. Then drop the arms to the ground. This completes the full cycle. The arm lift expands the chest by pulling on the chest muscles, arching the back, and relieving the weight on the chest.

The cycle should be repeated 12 times per minute at a steady uniform rate. The compression and expansion phases should occupy about equal time, the release periods being of minimum duration.

Additional Related Directions

It is all-important that artificial respiration, when needed, be started quickly. There should be a slight inclination of the body in such way that fluid drains better from the respiratory passage. The head of the subject should be extended, not flexed forward, and the chin should not sag lest obstruction of the respiratory passages occur. A check should be made to ascertain that the tongue or foreign objects are not obstructing the passages. These aspects can be cared for when placing the subject into position or shortly thereafter, between cycles. A smooth rhythm in performing artificial respiration is desirable, but split-second timing is not essential. Shock should receive adequate attention, and the subject should remain recumbent after resuscitation until seen by a physician or until recovery seems assured.

SCIENCE TALENT SEARCH

TOO OFTEN youthful talent is not discovered, and because of a lack of financial backing the high school boy or girl with exceptional natural ability in the field of science is never able to develop his God-given gifts.

In order to discover the talented boys and girls of high school age, Science Service, a non-profit institution for popularization of science, has been established. Its trustees are nominated by the National Academy of Sciences, the National Research Council, the American Association for the Advancement of Science, the E. W. Scripps Estate and the journalistic profession. Financed by the Westinghouse Educational Foundation, it forms Science Clubs in the high schools all over the country. Through these clubs, students are urged to undertake research problems in the field of science. Each year, examinations are held and from the 300 top-ranking contestants forty are awarded trips (all expenses paid) to Washington, D. C., to take part in a five-day Science Talent Institute. They visit places of scientific interest in our capital, meet prominent scientists, and compete for scholarships awarded by the Westinghouse Educational Foundation. Although the scholarships total but $11,000, nearly half going to the winner and runner-up in the contest, to be among the 300 top-ranking contestants serves as a recommendation for admission to a college.

The record shows that of 400 chosen during the past ten years, 178 have earned undergraduate degrees, forty-seven Masters and twenty-three M.D., Ph.D., or D.Sc. degrees. At least eighty have full-time positions as astronomers, mathematicians, chemists, engineers, physicists or physicians in research centers or nationally known industries.

Science Service is located at 1719 N Street N. W., Washington 6, D. C.

HENNEPIN COUNTY NEONATAL MORTALITY STUDY

During 1950, in Minnesota, 1,874 infant deaths occurred. On the basis of provisional figures, 1,893 infant deaths occurred in 1951. There are as many deaths during the first year of life as there are in the total of the next consecutive 39 years. In other words, as many babies die before reaching their first birthday as the total number of deaths that occur between the ages of one and 40 years. More than one-third of these babies die during their first day of life; more than two-thirds die during the first week of life; and three-fourths of all the deaths during the first year of life occur within the first month after birth. Less than 25 per cent of infant deaths occur between the first and twelfth month of life. Thus, any significant reduction in infant mortality must depend on a decrease in deaths during the first month of life, the so-called neonatal period. While many of these deaths are non-preventable at the present state of our medical knowledge, there are many that are considered preventable and hence the special interest in neonatal mortality.

A study of maternal deaths by the Minnesota State Medical Association in co-operation with the Department of Obstetrics of the University and the State Department of Health, was first carried out in 1941-42. It was reactivated in 1950 and is now in its second consecutive year. In 1941-42 the maternal mortality rate was 1.6 per 1,000 live births with 94 maternal deaths. On the basis of 1951 provisional statistics, the rate has dropped to 0.4 per 1,000 live births with only 32 deaths, a decrease of 75 per cent in the rate in a decade. The effectiveness of the maternal mortality study and its general acceptance is further evidenced by the fact that the Council of the State Medical Association has requested the State Health Department to continue to underwrite the study indefinitely. It is generally felt that a similar study of neonatal deaths should produce equally effective results. A state-wide neonatal study, however, presents a much more formidable problem, as almost 1,500 neonatal deaths occur annually in Minnesota. Furthermore, many clinical records in rural hospitals are scanty, laboratory facilities may be limited, and autopsies are infrequent. A state-wide study was therefore considered impractical and it was deemed advisable to establish a pilot study in one metropolitan area. After the pilot study demonstrates its value, it is planned to extend the study to Ramsey, St. Louis, and other counties and possibly to eventually make it state-wide in scope.

Hennepin County was selected for the pilot study because it is a convenient and easily accessible area, has a limited number of neonatal deaths, with fairly complete records, and has a reasonably high percentage of autopsies. Of a total of 500 annual infant deaths occurring in 15 Minneapolis hospitals, there are approximately 385 neonatal deaths or 32 per month; 43 per cent have autopsies, a total of 165 per year or 14 per month.

The Board of Directors of the Hennepin County Medical Society has approved the study and appointed the following committee:

Dr. A. Friedell, Dr. E. C. Maeder, and Dr. H. R. Ransom.

The Northwestern Pediatric Society has approved the study and appointed:

Dr. F. H. Adams, Dr. E. S. Platou, and Dr. L. F. Richdorf.

The Minneapolis Health Department has appointed:

Dr. Evelyn Hartman.

The Minneapolis Hospital Council has appointed:

Mr. Russell Nye, Superintendent, Northwestern Hospital.

And from the Medical School, University of Minnesota:

Dr. Irvine McQuarrie, Head, Department of Pediatrics.

Dr. James R. Dawson, Jr., Head, Department of Pathology.

The Committee elected Dr. L. F. Richdorf as Chairman and Dr. A. B. Rosenfield as Secretary.

The objective of the study, in general, is to reduce the preventable causes of neonatal mortality by a detailed study of each neonatal death, including management of the newborn, nursery procedures, and the adequacy of autopsies.

More specifically, the committee will:

Consider the clinical history, physical findings, and diagnosis in relation to autopsy findings.

Rate responsibility—
- Was it a pediatric or obstetric death?
- Was it preventable or non-preventable, or unclassifiable?
- Was there adequate prenatal care?
- Were there adequate hospital facilities?
- Was family, physician, or hospital at fault?
  - (a) Error in judgment or technique?
  - (b) Intercurrent disease?
  - (c) Unavoidable disaster?

Judge adequacy of records, autopsies, et cetera.

Point out inadequacies and make suggestions for reducing preventable factors by an educational program—
- (a) At Medical Society meetings.
- (b) At hospital staff meetings
- (c) Through medical bulletins and journals
- (d) Through other educational approaches.

The study will limit itself to all deaths *under twenty-eight days* of life *with autopsies,* in accordance with the generally accepted definition of "neonatal," which relates to the period of life, following delivery, of less than 28 completed days. The study will be carried out by means of specially prepared questionnaires that will be completed by the hospital librarian at the time the clinical record is compiled. A detachable tab at the top of the form will contain the name of the patient, the attending physician, and the hospital and patient code numbers so that death certificates may be cross matched. To maintain anonymity of patient, physician and hospital, however, this tab will be removed by the Minnesota Department of Health before referring the completed report to the Study Committee, leaving only a hospital code number and a patient code number on the study form.

Each hospital staff has been requested to appoint a hospital committee consisting of a pediatrician, an obstetrician, and the pathologist to supervise the completion of the study form, to return the form to the study committee, and to act as a liaison group between the hospital librarian and the Neonatal Study Committee. The possibility of employing a pediatrician-investigator to prepare the questionnaires and a summary of each death, similar to the method used in the maternal mortality study, will be considered by the committee. A member of the state-wide maternal mortality study committee, Dr. C. J. Ehrenberg, will serve as liaison member to the Hennepin County Neonatal Mortality Study Committee.

The study will begin as of January 1, 1952, and will continue during the current year. At the end of one year's study, the committee will evaluate the benefits and accomplishments of the study and will determine the future course of the study.

THE JOURNAL OF THE SAMA

For several years, there has been some talk of the desirability and need for a Students' American Medical Association. This culminated in a resolution passed by the AMA House of Delegates assembled in San Francisco in June, 1950, approving the formation of a Students' AMA and pledging the support of the AMA to the new organization. On December 28, 1950, delegates from forty-eight medical schools met at the Sheraton Hotel in Chicago in response to letters sent to the Deans of every medical school by Dr. George F. Lull, Secretary of the AMA. On the following day, December 29, 1950, the Students' AMA was launched.

The first officers elected at this Chicago meeting were: Warren R. Mullen, University of Michigan Medical School, president; Harry W. Sandberg, University of Illinois College of Medicine, vice president; David Buchanan, University of South Dakota School of Medical Sciences, treasurer. A constitution was drawn up which by March, 1951, had been ratified by forty-one component student medical societies which became charter chapters in the new organization. From the start it was evident that the AMA had no desire to dictate to the students' organization. However, three Senior Councilors to the Students' AMA, Drs. Ernest E. Irons, G. Lombard Kelly and Thomas P. Murdock, were appointed by the AMA Trustees, to serve in advisory capacities.

Last July, the Council of the SAMA decided to publish a journal for the membership of the SAMA to be known as *The Journal of the Students' American Medical Association.* The first issue appeared in January and nine issues will appear each year during the school months. Subscriptions are free to all medical students who are members of the SAMA. Efforts were made to reach every medical student in the country. If any medical student or intern has failed to receive his journal, he may fill out the form that appears on page 6 of the January issue of the *Students' JAMA* (or a similar certificate), have it countersigned either by the SAMA chapter advisor or the dean of the medical school, and send it to Students' AMA headquarters at 535 North Dearborn Street, Chicago 10, Illinois.

There is undoubtedly a need for a Students' AMA. Canada has had an active student intern organization for more than ten years. Similar organizations exist in Austria, Denmark, France, Germany, Italy, India, Netherlands, Sweden and Switzerland. It is also generally felt that there is a definite need for a SAMA journal which will contain articles of scientific and public relations value for the doctors of tomorrow.

Minnesota Medicine extends its best wishes for the success of this youngest journal of them all—*The Journal of the Students' American Medical Association.* The January issue is a credit to the students' organization.

ANTABUSE® AND BARBITURATES

Care should be taken in the administration of a barbiturate to one who is being treated with Antabuse.® While no clinical cases have been reported, in animals the effect of certain barbiturates is magnified many times by the pre-administration of Antabuse.®

HEALTH PROBLEMS IN INDIA

Communicable diseases are a major feature of health conditions in India. Smallpox, plague, cholera, typhoid, and dysentery still claim an enormous number of victims every year. Malaria is rampant throughout the region and claims over 100 million cases, with more than one million deaths every year. Tuberculosis is extremely common. While no reliable statistics are available, it has been estimated that in India alone there are two and one-half million cases, with half a million deaths every year. Another three-fourths of a million cases are estimated for Java and Madura, and so on—for other countries. The quantitative aspect of the health problems therefore presents a staggering picture. Poverty, hunger, and disease are arrayed in force against the people. In the field of tuberculosis, international assistance of WHO is being directed primarily to providing training facilities in modern methods of diagnosis and prevention. In Southeast Asia, an army of tuberculosis workers is needed, not a platoon. New training and demonstration centers, at present being opened with WHO assistance in almost all the countries of the region, are intended to point the way and to stimulate governments to concrete action on an adequate scale.—Chandra Mani, M.D., *American Journal of Public Health,* December, 1951.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMERICANS CONTINUE TO GET MORE AND BETTER MEDICAL CARE

The latest report of the AMA's Bureau of Medical Economic Research shows conclusively that, on the whole, the American people in 1950 received relatively more medical care for their money than they did in 1935-39. Dr. Frank Dickinson, director of the bureau, felt, however, that such a quantitative analysis could not possibly reveal the great improvements in the quality of medical care. He states: "Such tremendous strides in our health progress as the sharp reduction in the number of maternal deaths per 1,000 live births from about 5.0 in 1935-39 to less than 1.0 in 1950 and the jump in life expectancy at birth from 59.5 years in 1930 to more than 68 years in 1950 are not measured by indices of the quantity of medical care."

During the past twenty years, according to this report, the American people have spent a constant proportion of their consumer budget, roughly 4 per cent, for medical care. Dr. Dickinson explains this comparatively small proportion in this way: "The demand for medical care has been small in comparison to the demand for other consumer items. It has been small, not because people could not afford more, but because they preferred to spend their budgets in this manner. In the past one could say that the irregularity and unpredictability of medical expenses were greater deterrents to the purchase of medical care than the actual amount of expenses. Today, however, the widespread availability of hospital and medical insurance makes medical care a readily marketable item."

Medical Insurance Readily Available

The report states that the availability of hospital and medical insurance enables any particular family to approach this 4 per cent rate—the average for all families.

> "A family can purchase a typical Blue Cross-Blue Shield membership, which will pay the bulk of hospital and in-hospital medical bills for roughly 25 cents a day—the price of a package of cigarettes . . . With over half the population carrying some form of medical or hospital insurance, the small demand for medical care certainly does not mean that people do not have the money for medical care, but that they are purchasing the amount they desire."

Get More for the Money

Thus, the report continues, "with the index of the prices of medical care, including the high hospital rates, lagging behind the index of all consumer prices, they are receiving much more medical care for their money. In fact, average weekly earnings have risen so much more rapidly than the cost of medical service, *that a production worker today can buy almost twice as much medical care with a week's wages as he could in 1935-39*. And health progress has given him another dividend—more and better years in which to earn. Today, in a period of general inflation, the consumer is getting more and better medical care for the same proportion of his personal consumer expenditures."

Explaining the changes further, the report says:

> "The rise between 1945 and 1950 largely reflects wartime conditions in 1945, the tremendous increase in the number of births in the postwar years, the rapid rise in hospital room rates and the increased use of hospitals."

The report also pointed out that during the last twenty years, the physicians' share of the medical dollar dropped 12 per cent, from 31.8 cents to 28.1 cents, while the hospitals' share rose 66 per cent, from 13.9 cents to 23.1 cents. The report stressed the fact that the amount of services rendered by the average doctor was from one-third to one-half times greater in 1950 than during 1935-1939. Introduction of wonder drugs, improved transportation, increasing proportion of patients seen in the hospital and office, and other increases in technological efficiency have all contributed to this change in the over-all situation.

MEDICAL, SURGICAL INSURANCE STILL GROWS

A recent report of the Research Council for Economic Security has announced "an unprecedented growth in the activity of the commercial insurance companies in the hospital field during the past few years."

The report presents the following figures for comparison:

> "In 1939, some 1,260,000 persons were protected by group hospital insurance. By 1944, that number had grown to 8,400,000 and as of 1950 it was estimated to be 22,600,000. This is 15.1 per cent of our 1950 population. Some 75 million persons either have policies or are dependents of policy-holders who were covered by hospital insurance in 1950. Therefore, roughly 50 per cent of the population, excluding the armed forces, are estimated to have some measure of hospital insurance protection. It is estimated that the insurance companies pay from 45 to 50 per cent of the total hospital costs of their policy holders."

In the medical-surgical field, the report states that, in 1939, about 630,000 persons had cash indemnity coverage providing for medical and surgical costs. By 1944, the number had passed 5½ million and at the close of 1950, estimates placed it near 21,500,000. About 46 per cent of the total surgical and medical charges of group and individual policyholders are paid.

RENEWAL OF HEALTH PLAN FIGHT RE-EMPHASIZES HUGE COST

New agitation for enactment of compulsory federal health insurance has brought a renewed effort on the part of the medical profession and other groups to defeat any such legislation even before it gets started. A recent statement quoted in the Christian Science Monitor stresses the proposed program's huge cost: "Adoption by the United States of an all-inclusive national medical service like that in Britain would cost the federal government at least $18 billion a year, perhaps more, according to Miss Elizabeth W. Wilson, actuary and economist who has specialized in government health insurance." She reports:

> "Americans now spend approximately $10 billion yearly on both private and government medical care . . . the British health service is presently costing approximately three times the amount originally named by advocates, . . . the costs of any such system rise with the rise of salaries and the cost of materials. Inflation has boosted the cost of the British health service, and would boost the comparably sized American health service in the same way."

Compulsory Insurance Inflationary

Miss Wilson's estimate of the amount of the rise in cost over the $18 billion now forecasted by advocates of the system, is $3 billion more than a similar estimate made three years ago. That means a 20 per cent increase, she stated. "The introduction of socialized medicine would be inflationary in itself in tendency because $18 billion is approximately $8 billion more than is being spent in the United States for medical care at the present time. Unless such an added expenditure would result in the production of $8 billion more goods, the net result would be inflationary."

Miss Wilson concludes:

> "The figure of $18,000,000,000 represents about 7.5 per cent of the total annual income, whereas today the average American worker pays only about 4 per cent of his wages to medical care. Would the average workman—if he knew the actual figures—wish to nearly double his expenditure to obtain the benefits of government medicine? The Truman administration and the Federal Security Agency advocate introduction of a compulsory health insurance system which they say would be less inclusive than the British. It would cover somewhat more than 85 per cent of the population and would not include complete hospital or dental care. Certain drugs would not be free. But, experience has shown that once such a system is inaugurated, coverage is expanded to include all types of care for everyone."

JOURNAL URGES MORE IMPROVEMENT OF VOLUNTARY HEALTH PLANS

Asking the question, "what is the purpose of the medical profession, of our hospitals, and of our health insurance plans?", a recent editorial in the *Illinois Medical Journal* states that the answer is as plain as the question: "the provision of the best possible medical care to the greatest number of people." The *Journal* states:

> "In any consideration of their activities this fundamental purpose must never be lost sight of. Whenever other aims, other purposes are allowed to assume greater importance than the provision of the best possible medical care, we invite just criticism and, still more seriously, we invite failure. In spite of the fact that health insurance plans deal primarily with economic problems, we must always organize and develop, criticize, re-examine and reorganize these plans in answer to the question—'Do they help to assure the best possible medical care?'"

(Continued on Page 178)

◆ Reports and Announcements ◆

AMERICAN ACADEMY OF GENERAL PRACTICE

The American Academy of General Practice will hold its fourth Annual Assembly at Atlantic City, March 24-27, 1952.

The scientific program has been carefully planned so that the Scientific Exhibits will be an integral part of the formal teaching program. An array of outstanding teachers will take part in the program.

All AMA members are invited to attend. A registration fee of $5.00 will be required from non-members.

Hotel reservations may be made through the A.A.G.P. Housing Bureau, 16 Central Pier, Atlantic City, New Jersey.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The eighteenth annual meeting of the American College of Chest Physicians will be held at the Congress Hotel, Chicago, Illinois, June 5 through 8. A scientific program covering all recent developments in the treatment of heart and lung diseases is being arranged.

The Board of Examiners of the American College of Chest Physicians announces that the next oral and written examinations for fellowship will be held in Chicago on June 5. Candidates for fellowship in the College who wish to take the examinations should contact the Executive Secretary, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

Dr. John F. Briggs, Saint Paul, is regent of the College for the district, and Dr. Herman J. Moersch, Rochester, serves as governor of the College for Minnesota. Officers of the Minnesota Chapter are Dr. Gustaf A. Hedberg, Nopeming, president, and Dr. Arthur M. Olsen, Rochester, secretary-treasurer. Dr. Jay Arthur Myers, Minneapolis, is editor-in-chief of the College journal, *Diseases of the Chest.*

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The thirtieth annual scientific and clinical session of the American Congress of Physical Medicine will be held on August 25, 26, 27, 28 and 29 at the Roosevelt Hotel, New York, N. Y. Scientific and clinical sessions will be given on the days of August 25, 26, 27, 28 and 29. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

A special meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club in Saint Paul on February 5. Dr. H. Houston Merritt, Professor of neurology, Columbia University, was the guest speaker. Dr. Merritt's subject was "Epilepsy: Its Physiological Basis and Treatment."

PHYSICIANS ART ASSOCIATION EXHIBIT

The Physicians Art Association will have an exhibit at the Minnesota State meeting this year. Ample space and arrangements are being made, thanks to the sponsorship of the State Association and the Hennepin County Medical Society. The committee urges physicians to exhibit paintings, photography, sculpture, metal work and any other art project in this great exhibit. Be sure to enter your work out of your own interest and to encourage others in this excellent type of hobby.

Write to Dr. F. A. Zinter, 600 Physicians and Surgeons Building, Minneapolis, Minnesota, for entry blanks.

CONTINUATION COURSES

Otolaryngology.—The University of Minnesota announces the eighth biennial continuation course in otolaryngology to be held June 23 through 27. This course, designed to bring to the practicing otolaryngologist the newer concepts and developments in the specialty, will be under the direction of Dr. Lawrence R. Boies and associates of the University Medical School. Dr. Fred A. Figi, Dr. Henry L. Williams and others of the Graduate School faculty will participate in the instruction. Guest lecturers will include Dr. Louis Clerf, Philadelphia; Dr. Leland Hunnicutt, Pasadena; Dr. William McNally, Montreal, and Dr. W. Wallace Morrison, New York.

The fee for this course is $50. The enrollment is limited. Application should be made at an early date to the Director, Center for Continuation Study, University of Minnesota, Minneapolis 14, Minnesota.

Proctology.—The University of Minnesota will present a continuation course in proctology at the Center for Continuation Study on April 14 to 19. The course is intended primarily for physicians engaged in general practice. All aspects of ano-rectal disease will be covered, and two half days will be devoted to operative clinics in which registrants will take an active part. The visiting faculty member of the course will be Dr. Garnet W. Ault, professor, Department of Proctology, Georgetown University School of Medicine, Washington, D. C., and the course will be presented under the direction of Dr. O. H. Wangensteen, professor and chairman, Department of Surgery, and Dr. Walter A. Fansler, clinical professor, Department of Surgery, and di-

(Continued on Page 179)

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Woman's Auxiliary

AUXILIARY PRAISED BY PRESIDENT KENNEDY

State board members of the Woman's Auxiliary were urged to continue assisting democracy to "keep its house in order," at the annual mid-winter board meeting, held January 16 at the Curtis Hotel in Minneapolis.

Dr. R. L. J. Kennedy, president of the Minnesota State Medical Association, asked auxiliary members to help with "washing out the dirty linen created by political propaganda-rakers, sweeping out of office the bureaucrats unqualified to conduct this country's affairs, and dusting off our cherished ideals of freedom and personal initiative."

Dr. Kennedy praised the auxiliary for its excellent cooperation and aid to the medical profession and called for continued efforts to keep the issue of socialized medicine from gaining a foothold in America. There is to be no slackening of individual effort in the national education campaign being conducted by the American Medical Association and by state and county medical societies, Dr. Kennedy pointed out.

Speaking at the luncheon, Dr. Kennedy cited President Truman's recent appointment of a commission to study health needs and a proposal to provide free hospitalization for all persons over sixty-five, regardless of their ability to pay, as examples of devious means of obtaining government control of the nation's health.

"As long as the public knows the value of its liberty, rights and responsibilities, we need never fear that socialism will gain entry," he said. "Protecting our own threshold—the right of the individual to choose the medical care he wants—is vital, but we must continue to interpret this right and this freedom in its context of all American freedoms. We know that when the public loses control over its health care, then it has begun to lose control over every other field of human thought and endeavor. We can't let that happen here and we won't."

Countering the charge that doctors are against everything and for nothing except the status quo, Dr. Kennedy said: "We are for the status quo, insofar as that is interpreted to mean the present framework for medical practice, research and education. . . ." He noted that that framework cannot work except by a constant changing and state of flux.

Regarding medicine's so-called "negative attitude," Dr. Kennedy said:

"We are hard at work at far more progressive programs than the socializers, with all their Utopian dreaming, ever visualized. We are, for example, working very hard on a problem that medical science, through its progress, has created for itself: geriatrics, the problem of an aging population in a world that is not yet geared to making the most of the 20 bonus years that medical advancements have added to the average life span. We are concerned with the correlated problem of proper care of the chronically ill. We're troubled over civil defense and trying, through leadership in our ranks, to help awaken a tragically dormant populace. We're interested in improving and enlarging medical schools, without sacrificing the excellence we have strived so hard to gain."

Auxiliary President Reports

Beginning the morning Board meeting, Mrs. F. P. Moersch, president of the State Auxiliary, reported on the Conference of State Presidents and Presidents-Elect which was held in Chicago last November, stating that "all but three states and territorial auxiliaries were represented," and with nearly 130 women attending.

Mrs. Moersch summarized for auxiliary members each of the important panel discussions which were presented at the meeting, including which states were represented on each panel, what topics were discussed, and what conclusions were drawn. Mrs. Moersch represented the Minnesota Auxiliary on the panel on Health Days, speaking on "The Meaning and Objectives of Health Days."

The excellent attendance at this meeting, Mrs. Moersch felt, proves the familiar saying that "coming together is a beginning; working together is growth; staying together is progress." She quoted Mrs. Eusden, national president-elect, who stated: "Today, state presidents and presidents-elect believe attendance at this conference is one of the duties that they assume when taking office."

Board Hears Reports

Also during the morning Board meeting, reports of various committee chairmen and county representatives present were heard. Members were urged to subscribe to the Bulletin, and *Today's Health,* and to work to collect surplus medical supplies, to be informed about legislative matters, to promote Health Days, to continue to plan interesting and informative programs. County presidents, or a representative from the county, reported on activities of their auxiliaries since the fall conference, revealing much progress and continued hard work on the part of medical auxiliaries throughout the state.

LEGISLATIVE REPORT SENT TO COUNTIES

Mrs. H. F. R. Plass

A summary of the medical profession's official position on all important national legislative matters has been sent to all county auxiliary presidents and legislative chairmen.

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In Memoriam

E. SYDNEY BOLEYN

Dr. E. Sydney Boleyn, for over fifty years a practitioner at Stillwater before his retirement five years ago, died on December 23, 1951, at the age of 87. For years he had been active in the affairs of Washington County Medical Society and of the Minnesota State Medical Association. He was secretary-treasurer of his county society for about 40 years and served as vice president of the state association at one time.

Born on shipboard under the British flag, May 1, 1864, Dr. Boleyn was educated in England before coming to this country in 1886. He obtained his medical degree at the University of Minnesota in 1894. After interning three years at St. Barnabas Hospital, Minneapolis, he spent 15 months more in medical training at the State Penitentiary in Stillwater before locating in Stillwater for private practice.

On December 2, 1907, he was married to Helen Businger who survives him.

Even after his retirement from practice, Dr. Boleyn maintained his interest in medical affairs and was a regular attendant at state and county medical meetings as long as his health permitted.

At a County Officers Medical Conference held in St. Paul in 1940, Dr. Boleyn remarked on the longevity which had characterized his family and stated that his mother was living at the age of 104 at that time and his father was about 10 years older. Both were residing in India at that time, his father being a retired civil service employe of the British Government. The oldest relatives he knew of were an uncle who had lived to be 127 and an aunt 124.

AXEL E. HEDBACK

Dr. Axel E. Hedback, on the editorial board of the *Journal Lancet* beginning in 1920, the editor of *Modern Medicine* from 1933 to 1939 and lately editor of *Geriatrics*, died December 31, 1951.

He was born at Karlstad, Sweden, April 21, 1874. His preliminary education was obtained at New Richmond, Wisconsin, and he received his M.D. at the University of Minnesota in 1897. A year's internship was spent at the State Penitentiary in Stillwater. Postgraduate study was taken at Harvard, Johns Hopkins and the University of Vienna.

Dr. Hedback was active in civic affairs and took part in raising funds for the new central YMCA building in Minneapolis. He was a onetime member of the Minneapolis charter commission and was a member of the Minnesota State Board of Health from 1919 to 1923. He was president of the Hennepin County Medical Society in 1928.

Dr. Hedback is survived by his wife, Gladys W. Hedback, a son, John William Hedback of Chicago and three daughters, Mrs. Dwaine Lindberg of Minneapolis; Mrs. Don O. Lampland and Mrs. David Paul Keefe of St. Paul.

JOHN H. MILLS

Word has been received of the death of Dr. John M. Mills on October 14, 1951, in Portland, Oregon; he was formerly a fellow in medicine of the Mayo Foundation.

Dr. Mills was born May 19, 1902, at Liverpool, England. He received the degree of M.D. in 1933 from the University of Chicago and interned at the Presbyterian Hospital, Chicago, from May, 1932, to October, 1933.

Dr. Mills entered the Mayo Foundation as a fellow in medicine on January 1, 1934; he received the degree of M.S. in Medicine in 1936 from the University of Minnesota and left the Foundation on January 1, 1937, at which time he went to Tacoma, Washington, to practice general medicine. During the next several years he practiced general medicine at Lakeland, Florida; was instructor in medicine at the University of Maryland; practiced general medicine at Chicago and was instructor in medicine at Northwestern University. He joined the staff of the Rockwood Clinic in Spokane, Washington, in June, 1941, and more recently was chief of medicine of the Veterans Administration Hospital at Marquam Hill, Portland, Oregon. He became a lieutenant colonel while on active service, A.U.S., and served successively at Letterman General Hospital, San Francisco, Kennedy General Hospital, Memphis, Tennessee, and Cushing General Hospital, Framingham, Massachusetts. After his separation from the service he resumed his work at the Veterans Administration Hospital at Marquam Hill, Portland, Oregon.

Dr. Mills was a fellow of the American College of Physicians, and a member of the American Medical Association, Alphi Chi Sigma, Sigma Xi, Phi Rho Sigma and Alpha Omega Alpha.

RUSSELL WRIGHT MORSE

Dr. Russell W. Morse, well-known radiologist of Minneapolis, died December 29, 1951, in Panama City, Florida.

He was born in Minneapolis May 24, 1894, and attended Minneapolis Central High School. He received the degrees of B.S. and B.M. from the University of Minnesota in 1917 and M.D. in 1920. He interned the following year at the University Hospital from 1920 to 1924.

Dr. Morse practiced in Minneapolis from 1920 to 1924 when he moved to New York. In 1932 he returned to Minneapolis where he practiced until his death. He was roentgenologist at St. Barnabas Hospital and clinical

(Continued on Page 168)

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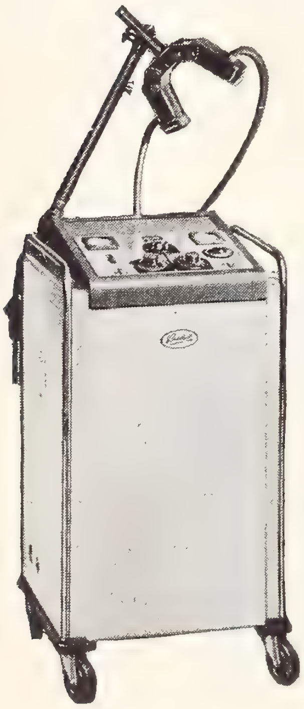

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RUSSELL WRIGHT MORSE

(Continued from Page 166)

assistant professor of radiology at the University of Minnesota School of Medicine.

Dr. Morse was a past president of the Minneapolis Academy of Medicine, a member of the Hennepin County Medical Society of which he was president in 1940, a member of the New York Academy of Medicine, the Radiological Society of North America, the American College of Radiology and the Minnesota Radiological Society.

Surviving are his wife, Elizabeth, a daughter, Melva; and a son Russell, both of Bozeman, Montana. Two stepsons, Lyman and Robert Tifft both of Edina also survive him.

Dr. Morse was a member of the Minneapolis Club and for many years was active in musical organizations in Minneapolis. An accomplished cellist he often appeared in concerts with amateur musical groups. His untimely death was the result of an anemia incurred by exposure to X-ray radiation.

J. SPENCE REID

Word has been received of the death of Dr. J. Spence Reid, former fellow in surgery of the Mayo Foundation, on November 29, 1951, at Toronto, Ontario.

Dr. Reid was born December 26, 1893, at Tillsonburg, Ontario, and received the degree of M.B. in 1920 from the University of Toronto after which he practiced medicine at Tillsonburg for one year. He entered the Mayo Foundation as a fellow in surgery on January 1, 1922. From October 1, 1924, to January 1, 1926, he was first assistant in surgery and he left the Mayo Foundation on April 1, 1926, to practice surgery in Toronto.

Dr. Reid was a fellow of the Royal College of Surgeons of Canada and a member of the Toronto Academy of Medicine, the Ontario Medical Association, Alpha Kappa Kappa, and Alpha Omega Alpha.

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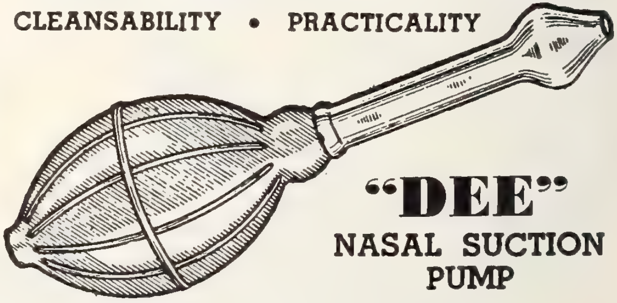

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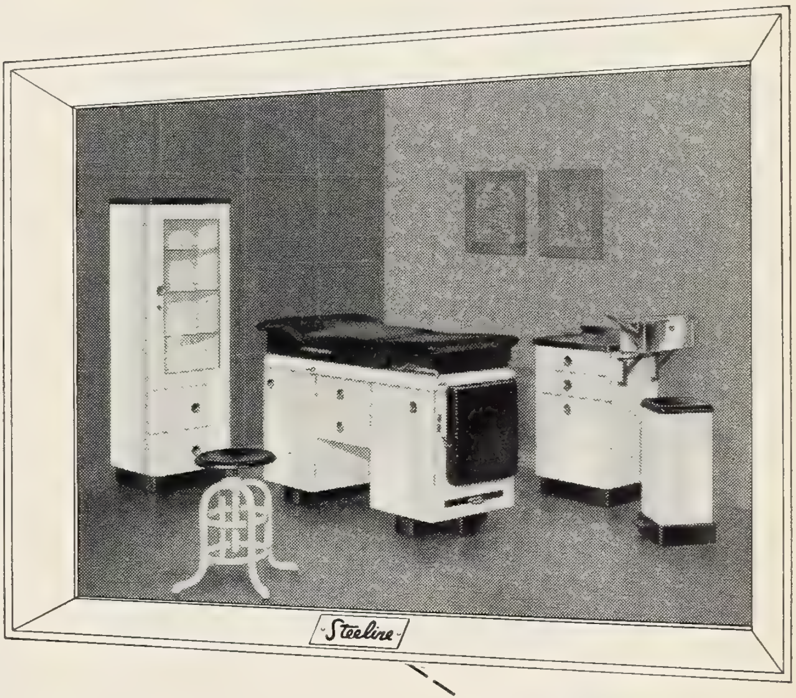

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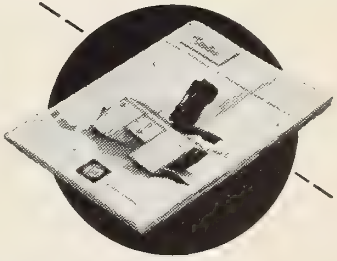

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Of General Interest

Grants of $90,776 for seven cancer research and education projects have been made to the University of Minnesota by the Minnesota Division of the American Cancer Society, it was announced on January 5 by Dr. C. G. Uhley, Crookston, president of the state organization.

The projects include the following: investigations on mammary cancer in mice and observations on lung and liver cancer, a special research fund to support new ideas in cancer research, a special fund for future development of the staff and program of the division of cancer biology at the medical school, support of a professorship in cancer biology, continuance of the cancer detection center, support for "second look" operations for patients with gastrointestinal cancer, and cancer education for graduate and undergraduate nurses.

* * *

Dr. Roger L. J. Kennedy, Rochester, president of the Minnesota State Medical Association, was the principal speaker at the annual mid-winter board meeting of the medical association's Woman's Auxiliary in Minneapolis on January 16.

* * *

It was announced on January 10 that **Dr. R. L. Baird** had become associated in practice with **Dr. F. W. Franchere** at Lake Crystal. Dr. Baird, a graduate of the University of Colorado School of Medicine, was a resident physician at St. Luke's Hospital, Saint Paul, prior to joining Dr. Franchere.

* * *

Dr. David S. Thorsen, Saint Paul, was guest speaker at a meeting of the Saint Paul Association for Mentally Retarded Children on January 9.

* * *

Among those attending a continuation course in pediatrics at the University of Minnesota early in January was **Dr. Clayton E. J. Nelson** of Albert Lea.

* * *

Dr. Henry E. Michelson, Minneapolis, was recently elected an honorary member of the Austrian Dermatological Society.

* * *

At the annual meeting of the Itasca County Board on January 8, **Dr. M. J. McKenna** of Grand Rapids was named county health officer.

* * *

Dr. Gaylord W. Anderson, director of the University of Minnesota School of Public Health, has been appointed to the board of editors of the newly revised magazine, *Public Health Reports.* The magazine is an expanded version of the weekly journal of the same name which has been published since 1878 by the Public Health Service.

* * *

Among the featured speakers at a meeting of the Probate Judges' Association at Minneapolis on January 9 and 10 were **Dr. Ralph Rossen,** Minnesota mental health commissioner, and **Dr. Nelson Bradley,** superintendent of the Willmar State Hospital.

* * *

Dr. W. L. Benedict, Rochester, attended the Pan-American Ophthalmology Conference in Mexico City early in January. Dr. Benedict is the executive secretary-treasurer of the American Academy of Opthalmology and Otolaryngology.

* * *

Dr. Clarence Siegel, Saint Paul, presented a review of tuberculosis cases at the Ramsey County Children's Preventorium during a meeting of the Minnesota Tuberculosis Nurses Council at the preventorium on January 15.

* * *

Lt. Col. Thomas E. Dredge, Minneapolis, is now serving in Korea as senior advisor to the South Korean army medical service. He is helping to build a medical corps modeled along American lines.

When the war started, many Korean medical students were unable to complete their education, so an army medical school was established. Thus far it has graduated 130 students. A similar training program for nurses was also set up.

Dr. Dredge, a son of **Dr. and Mrs. H. P. Dredge** of Sandstone, is a graduate of the University of Minnesota Medical School. During World War II he was chief of medicine at Air Force hospitals at Miami, Florida, and at Veterans Administration Hospital, Brecksville, Ohio. He joined the United States military advisory group to the Republic of Korea in November, 1950.

* * *

Dr. J. Paul Person, Albert Lea, was a guest speaker at a meeting at Albert Lea on January 10 of the Freeborn County Relatives and Friends of the Mentally Retarded. Dr. Person's topic was "Physiological Aspects of Retardations."

* * *

Dr. George E. Moore, of the Department of Surgery at the University of Minnesota, was the guest speaker at a meeting of the Woman's Club at Hutchinson on January 10. Dr. Moore, who has been recognized for his work with fluorescine dye and radioactive substances in the detection of brain tumors, presented a discussion of cancer.

* * *

Dr. Nels M. Strandjord, Virginia, was awarded a certificate of merit for community service at the annual banquet of the Virginia Junior Chamber of Commerce on January 15.

* * *

Dr. Joseph W. Goldsmith and **Dr. Thomas K. Krezowski** have moved their offices to 1154 Lowry Med-

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* * *

The eighth annual J. B. Johnston lecture was presented at the University of Minnesota on January 30 by **Dr. Harold G. Wolff,** professor of medicine and psychiatry at Cornell University Medical College, New York. The title of Dr. Wolff's lecture was "The Nature of Pain." The meeting was open to the public.

* * *

Dr. Spencer F. Brown, of the Department of Pediatrics of Minneapolis General Hospital, has been awarded a scholarship for advanced study in cerebral palsy from the National Society for Crippled Children and Adults and Alpha Chi Omega, international women's collegiate fraternity. Dr. Brown will study this summer with **Dr. Meyer A. Perlstein,** chief of the children's neurology clinic, Cook County Hospital, Chicago.

* * *

The volume of services handled by the **Minneapolis War Memorial Blood Bank** has increased so much since the bank was opened three years ago that it now faces a serious shortage of space. During the 1951 fiscal year, 17,699 units of blood were drawn from donors—an increase of nearly 50 per cent over the 1950 total and 100 per cent more than in 1949. The blood bank also provides the technical services

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for the Defense Blood Center in Minneapolis, with the Red Cross in charge of donor recruiting. Since last July more than 10,000 units of blood have been drawn there for the Armed Forces.

* * *

Dr. O. F. Mellby, Thief River Falls, was re-elected president of the Oakland Park Sanatorium Commission at its annual meeting on January 11. Dr. Mellby is now serving his thirty-fifth consecutive year as president of the commission. Ex officio secretary is **Dr. Baldwin Borreson,** Thief River Falls, superintendent of the institution.

* * *

On January 18 **Dr. George D. Haggard,** Minneapolis, celebrated his ninety-sixth birthday anniversary. During the past year he has virtually given up all active practice and has been confined to his home because of illness.

* * *

Dr. Norman J. Lee, formerly of Saint Paul, is now associated in practice with the Hoidale-Workman Clinic at Tracy.

* * *

A one-day conference on criminal psychiatry for state hospital employes and law enforcement officials was held at the Hastings State Hospital on January 30. The conference was conducted by **Dr. William H. Haines,** psychiatrist at the Cook County Behavior Clinic, Chicago.

HOSPITAL NEWS

The following are the results of staff elections held recently at several Minnesota hospitals:

Glencoe Municipal Hospital, Glencoe.—Dr. H. H. Holm, president; Dr. H. C. Goss, secretary-treasurer.

Swedish Hospital, Minneapolis—Dr. Arthur N. Russeth, chief of staff; Dr. Nordahl Peterson, vice chief of staff; Dr. Delph T. Stromgren, secretary-treasurer.

Lutheran Hospital, Bemidji.—Dr. T. P. Groschupf, president; Dr. Charles Vandersluis, vice president; Dr. Harry A. Palmer, secretary-treasurer.

St. Joseph's Hospital, Brainerd.—Dr. John A. Thabes, Jr., chief of staff; Dr. R. A. Beise, vice chief of staff; Dr. A. M. Mulligan, secretary-treasurer.

Eitel Hospital, Minneapolis.—Dr. A. C. Olson, president; Dr. R. D. Thielen, vice president; Dr. Allan J. Blake, secretary-treasurer.

* * *

Le Sueur County became associated with nine other counties in the ownership of the **Southwestern Minnesota Sanatorium** at Worthington early in January when the board of commissioners paid almost $8,000 as a first half installment on a one-tenth equity in the institution. Increased cost of patient care and increased numbers of tuberculosis patients were given as reasons for the step. The cost of maintaining patients in state institutions had grown so much that the county commissioners decided to join the sanatorium group as an economy move.

Other counties who are part owners of the sanatorium are Blue Earth, Lincoln, Murray, Pipestone, Watonwan, Jackson, Cottonwood, Lyons and Nobles.

(Continued on Page 174)

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting March 3 June 2.
Surgical Anatomy and Clinical Surgery, two weeks, starting March 17, June 16.
Surgery of Colon and Rectum, one week, starting March 3, April 7.
Gallbladder Surgery, ten hours, starting April 21.
Basic Principles in General Surgery, two weeks, starting March 31.
Breast and Thyroid Surgery, one week, starting June 23.
Esophageal Surgery, one week, starting June 23.
Thoracic Surgery, one week, starting June 2.
Fractures and Traumatic Surgery, two weeks, starting February 4.
GYNECOLOGY—Intensive Course, two weeks, starting February 18, March 17.
Vaginal Approach to Pelvic Surgery, one week, starting March 3, March 31.
OBSTETRICS—Intensive Course, two weeks, starting March 3, March 31.
MEDICINE—Intensive General Course, two weeks, starting May 5.
Electrocardiography and Heart Disease, two weeks, starting March 17.
Gastroenterology, two weeks, starting May 19.
Hematology, one week, starting June 16.
UROLOGY—Intensive Course, two weeks, starting April 28.
Ten-Day Practical Course in Cystoscopy starting February 18, March 3, and every two weeks.
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(Continued from Page 172)

BLUE CROSS-BLUE SHIELD PLANS

In administering the Blue Shield Claims Department, rejection of claims involving previously known conditions has been the most difficult single feature. Claims rejected as previously known conditions require that questionnaires be sent to both the attending physician and the subscriber. Relationships with subscribers and doctors are not infrequently disturbed by the rejection of such claims. For these reasons, the previously known condition clauses of sixty Blue Shield plans in continental United States have been reviewed, and the results of this study appear to be of importance in any future consideration of this general problem.

Of the contracts examined, forty-one were service and nineteen were indemnity. Among the sixty contracts reviewed, four made no mention of pre-existing conditions and sixteen had no restrictions or limitations regarding such conditions. Further analysis revealed that of the ten largest plans in the country, three have indemnity contracts, and six have waiting periods for pre-existing conditions, while 4 place no limitation on such diseases.

Of the forty plans which limit benefits for previously existing conditions, thirteen exclude such benefits permanently—that is, they never pay benefits for conditions which antedated the effective date of the contract. The remaining twenty-seven contracts exclude benefits for pre-existing conditions for periods varying from six to eighteen months. Eighteen of these plans have a waiting period of eleven to eighteen months, four have a waiting period of ten months, and only five have a waiting period of six to nine months. Minnesota Blue Shield with its 10-month waiting period is more liberal or has a shorter waiting period than the majority of the plans in this survey which have some restrictions regarding pre-exitsing conditions.

As a result of this review, Minnesota Blue Shield has revised its subscriber and physician foreknowledge letters, this being the third revision during the past year. The entire system of informing both the physician and the subscriber of the rejection of claims has also been remodeled. In the newly adopted method, one letter is used for the six reasons for rejection which means "no contract is in effect" with the specific reason checked. Each of the remaining causes for rejection has a special letter to both the subscriber and doctor, each using as much as possible the exact language of the contract pertaining to that reason for rejection. This new method has been so fashioned as to save employees' time, inform both subscriber and physician regarding the contract, and improve subscriber and physician relationship.

During December, 1951, 7,279 claims were paid by Blue Shield and these claims costs amounted to $254,812.95. Minnesota Medical Service Inc. during this year 1951 provided medical-surgical-obstetrical care to approximately 88,000 Blue Shield subscribers. Payments to doctors during 1951 for their services amounted to approximately $3,095,000.

Since Blue Shield was incorporated four years ago, approximately 182,000 claims have been paid for Blue

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Shield subscribers and doctors have received approximately $6,662,000 for their services rendered to these Blue Shield subscribers.

During the third quarter of 1951, Blue Shield Plans throughout the nation gained a total of 1,403,063 new members. The increase in membership was comprised of approximately 423,725 subscribers and 979,338 dependents. As of September 30, 1951 membership in the seventy-seven approved Blue Shield plans totaled 20,279,725 and consisted of approximately 8,416,086 subscribers and 11,863,639 dependents.

Approximately 166,500 Blue Cross subscribers received hospital care during 1951 totaling approximately $12,500,000.

Since Blue Cross was organized in Minnesota in 1933, approximately 1,230,000 subscribers received hospital care with benefits totaling approximately $63,800,000.

During the third quarter of 1951, Blue Cross Plans throughout the nation gained a total of 468,918 new members. The increase in membership was comprised of 167,427 subscribers and 301,491 dependents. As of September 30, 1951, membership in the 88 approved Blue Cross plans totaled 40,888,535 and consisted of 17,126,007 subscribers and 23,762,528 dependents.

Non-Group Enrollment Opens

As of Friday, January 11, on the Blue Cross-Blue Shield "Dinner at the Adams" radio show via WCCO, Cedric Adams again began a series of direct appeals for non-group enrollment. In other words, *NON-GROUP ENROLLMENT IS AGAIN OPEN UNTIL FURTHER NOTICE!*

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

ROENTGENOLOGIC DIAGNOSIS OF DISEASES OF BONES. David G. Pugh, Assistant Professor of Radiology, Mayo Foundation, Graduate School, University of Minnesota; Consultant, Section on Roentgenology, Mayo Clinic. 316 pages. Illus. Price $5.00, cloth. New York: Thomas Nelson and Sons, 1952.

* * *

CALCULATION OF INDUSTRIAL DISABILITIES OF THE EXTREMITIES. Carl O. Rice, M.D., M.S., Ph.D., F.A.C.S. Clinical Associate Professor of Surgery, University of Minnesota Medical School; Surgical Staff, St. Barnabas Hospital, Minneapolis, Minnesota. 289 pages. Illus. Price $10.50, cloth. Springfield, Illinois: Charles C Thomas, 1952.

* * *

STANDARD NOMENCLATURE OF DISEASES AND OPERATIONS. Fourth Edition. Richard J. Plunkett, M.D., Editor, and Adaline C. Hayden, R.R.L., Associate Editor. 1034 pages. Price $8.00, cloth. Philadelphia: The Blakiston Co., 1952.

* * *

DIAGNOSTIC BACTERIOLOGY. A Textbook for the Isolation and Identification of Pathogenic Bacteria. Fourth Edition. Isabelle Gilbert Schaub, A.B., Technical Director Clinical Bacteriology Laboratories, Johns Hopkins Hospital; Instructor in Bacteriology, Johns Hopkins University School of Medicine, and Nurses Training Schools, Johns Hopkins Hospital and Sinai Hospital; and M. Kathleen Foley, M.A., Instructor in Bacteriology, Department of Biological Sciences, College of Notre Dame of Maryland; formerly Bacteriologist in Charge of the Diagnostic Bacteriological Laboratory of the Medical Clinic, Johns Hopkins Hospital. 356 pages. Price $4.50, cloth. St. Louis: C. V. Mosby Co., 1952.

* * *

DYNAMIC PSYCHIATRY—Basic Principles. Volume 1. Louis S. London, M.D. Diplomate, American Board of Psychiatry and Neurology, member American Psychiatric Association, etc. 98 pages. Price $2.00, cloth. New York: Corinthian Publications, Inc., 1952.

* * *

ENDOCRINE FUNCTIONS OF THE PANCREAS. Bernard Zimmermann, M.D. Department of Surgery, University of Minnesota, Minneapolis, Minnesota. 82 pages. Illus. Price $2.50, flexible binding. Springfield, Illinois: Charles C Thomas, 1952.

HOMEWOOD HOSPITAL is one of the Northwest's outstanding hospitals for the treatment of Nervous Disorders—equipped with all the essentials for rendering high-grade service to patient and physician.

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SPATIAL VECTOR ELECTROCARDIOGRAPHY; CLINICAL ELECTROCARDIOGRAPHIC INTERPRETATION. By Robert P. Grant, M.D., National Heart Institute, Bethesda, Md., and E. Harvey Estes, Jr., M.D., U. S. Naval Hospital, Bethesda, Md. 149 pages. Illus. Price $4.50. Philadelphia: Blakiston, 1951.

Spatial vector electrocardiography is assuming importance in bringing precision into the study of electrocardiography. The vector method of interpretation supersedes the empirical method of such an interpretation in a great many ways. We have, as a result, better criteria for differentiating the normal from the abnormal record. These criteria are precise and more rational. Although this volume makes no effort to be comprehensive it is an excellent and readily understandable exposition of a difficult subject. This volume will be valued by anyone interested in electrocardiography.

John F. Briggs, M.D.

ROSENAU PREVENTIVE MEDICINE AND HYGIENE. Kenneth F. Maxcy, ed. Seventh edition, New York; Appleton Century, Inc., 1951.

The first edition of this authoritative work was published in 1913 by Dr. Milton Y. Roseman, Professor of Preventive Medicine and Hygiene at the Harvard Medical School. In five subsequent editions, the work was brought up to date in a field that has been making rapid progress during the years. His sixth edition was published in 1935.

The task of bringing out a seventh edition was accepted in 1942 by Dr. Kenneth F. Maxcy, Professor of Epidemiology, the Johns Hopkins School of Hygiene and Public Health. The war interfered with progress in the compilation of a work which necessarily required the cooperation of many specialists in the various phases of Preventive Medicine. This seventh edition will continue the publication as a valuable and authoritative source of reference.

C. B. Drake, M.D.

SURGERY OF THE OBLIQUE MUSCLES OF THE EYE. By Walter H. Fink, M.D. 350 pages with 93 illustrations. Price $8.75. St. Louis: C. V. Mosby Company, 1951.

This is an excellent book by one of our Minnesota authors. The volume is well illustrated with numerous anatomical photographs and line drawings.

Part I goes into great detail on embryology, comparative anatomy, developmental anomalies, and microscopic and gross anatomy of the superior oblique muscles. The author has made a successful attempt to be very inclusive in his coverage of the subject matter. The illustrations are particularly helpful.

Part II covers the Management of Oblique Muscle Defects. The chapter on Diagnosis contains seventy-three pages giving a very comprehensive coverage of the many tests that may be applied. To one who is less conversant with the field than the author, it is perhaps confusing to be forced to choose from so many different tests. The chapter on Surgical Technique is very lucidly illustrated and is a pleasure to read. An appended chapter on Anatomical Considerations in Operation for Retinal Detachment is well illustrated and very helpful.

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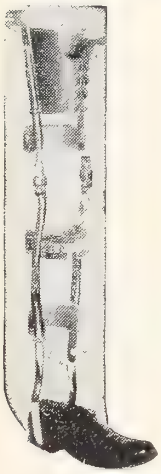

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JOURNAL URGES MORE IMPROVEMENT OF VOLUNTARY HEALTH PLANS

(Continued from Page 161)

Warns Against Negative Approach

"A negative approach to these problems is not enough," according to the *Journal*. "We cannot merely find fault with and oppose those plans of which we do not approve. We must continue to improve, expand and extend the voluntary insurance programs along with other plans to achieve the best possible medical care. Each plan, each program, each extension, and each limitation must be examined in that light."

The *Journal* emphasizes that the voluntary insurance plans are mutual efforts:

> "They are no more a way of obtaining something for nothing than is aid from the Federal Government. Every service provided through these insurance plans has to be paid for by the members of the plans, by the recipients of the services. These plans are merely means of avoiding large, unexpected, unplanned, expenses at one time and of spreading this expense over a larger number of people, for the time being, and over a number of years."

REHABILITATION OF THE HEMIPLEGIC PATIENT

(Continued from Page 140)

11. Kraus, Hans: Principles and Practice of Therapeutic Exercises. Springfield, Illinois: Charles C Thomas, 1949.
12. Krusen, F. H.: Physical Medicine; the Employment of Physical Agents for Diagnosis and Therapy. Pp. 517-629. Philadelphia: W. B. Saunders Company, 1941.
13. Leemhuis, A. J., and Brown, J. R.: Treatment of the hemiplegic patient. Journal-Lancet, 70:90-93 (Mar.) 1950.
14. Wells, F. L., and Ruesch, Jurgen: Mental Examiners' Handbook. Ed. 2, pp. 33-46. New York: Psychological Corporation, 1945.

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CONTINUATION COURSES

(Continued from Page 162)

rector, Division of Proctology. The remainder of the faculty will include members of the clinical staff of the University of Minnesota Medical School and the Mayo Foundation.

Surgery.—The University of Minnesota will present a continuation course in surgery on April 7 to 9. The course will be held at the Center for Continuation Study and is primarily intended for physicians engaged in general practice. The course will be concerned primarily, but not exclusively, with pediatric surgery. The guest speaker for the course will be Dr. Robert E. Gross, Ladd Professor of Children's Surgery, Harvard Medical School, and surgeon-in-chief, Children's Hospital, Boston, Massachusetts, who will also deliver the annual George E. Fahr Lecture on April 8 at 8:00 p.m. The subject of the Fahr Lecture will be "Coarctation of the Aorta." In conjunction with the continuation course, Dr. Gross will also discuss "Surgery in the Early Months of Life" and "Treatment of Certain Tumors in Childhood." The course will be under the direction of Dr. Owen H. Wangensteen, professor and head of the Department of Surgery, and he will be joined by clinical and full-time members of the staff of the University of Minnesota and the Mayo Foundation.

McLEOD COUNTY SOCIETY

Dr. Joseph Selmo, Norwood, was elected president of the McLeod County Medical Society at its annual meeting at Glencoe on January 17. Named as secretary of the organization was Dr. Kenneth H. Peterson, Hutchinson.

WASECA COUNTY SOCIETY

At the annual meeting of the Waseca County Medical Society at Waseca on January 7, Dr. S. C. G. Oeljen was elected president and Dr. S. T. Normann, vice president, both of Waseca; and Dr. George H. Olds, New Richland, secretary-treasurer.

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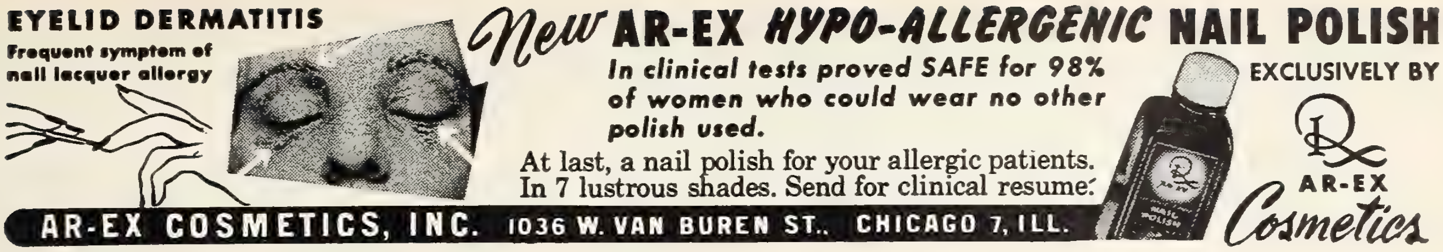
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WANTED—General practitioner for small group near Minneapolis. Man should be especially interested in obstetrics and surgery. Only one interested in permanent partnership need apply. Address E-294, care MINNESOTA MEDICINE.

AVAILABLE IMMEDIATELY—Attractive opening in Obstetrics, also Internal Medicine. Address E-267, care MINNESOTA MEDICINE.

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PHYSICIANS WANTED—Opening for General Practitioner, Obstetrician, and Surgeon in newly established clinic at 9820 Lyndale Avenue South, Minneapolis, serving township of approximately 12,000. New building ready for occupancy February first. Write L. E. Gallett, 2131 W. Old Shakopee Road, Minneapolis 20. Telephone SOuth 1-7717.

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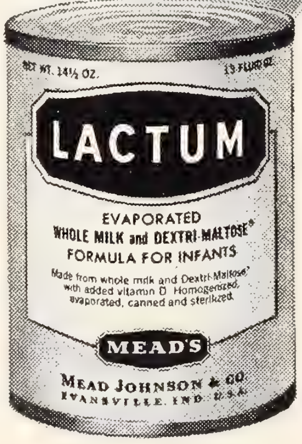
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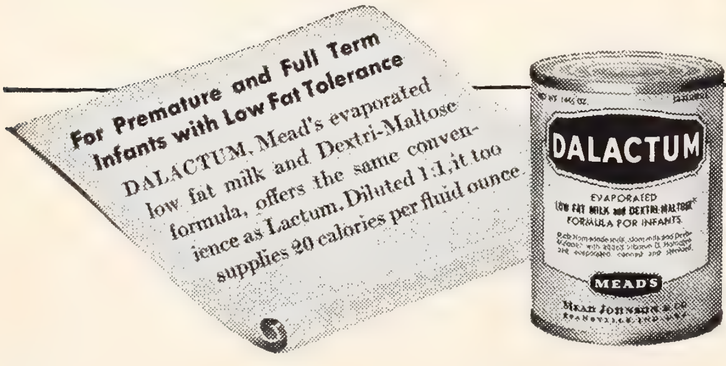
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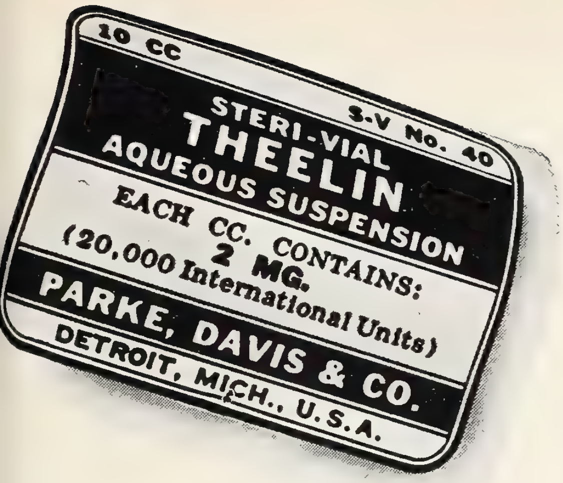
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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 **March, 1952** **Number 3**

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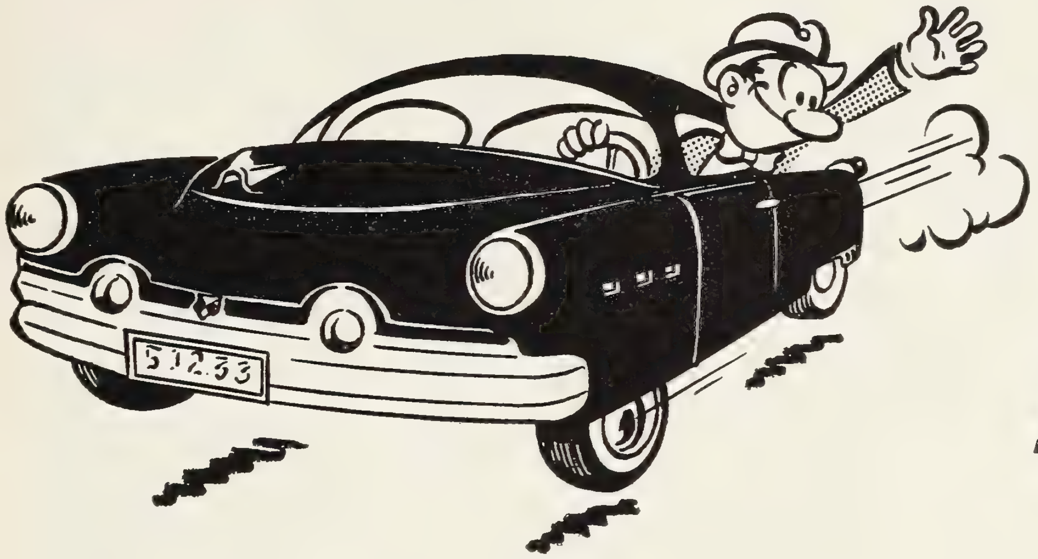

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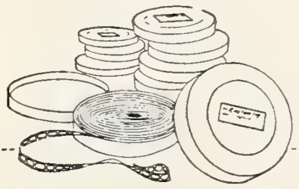

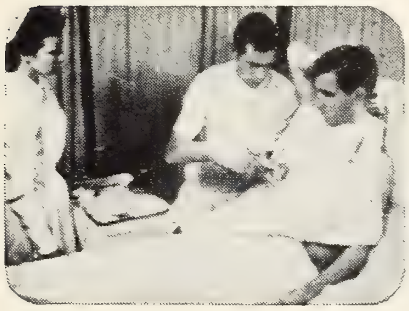

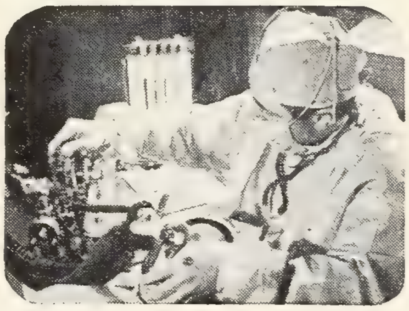

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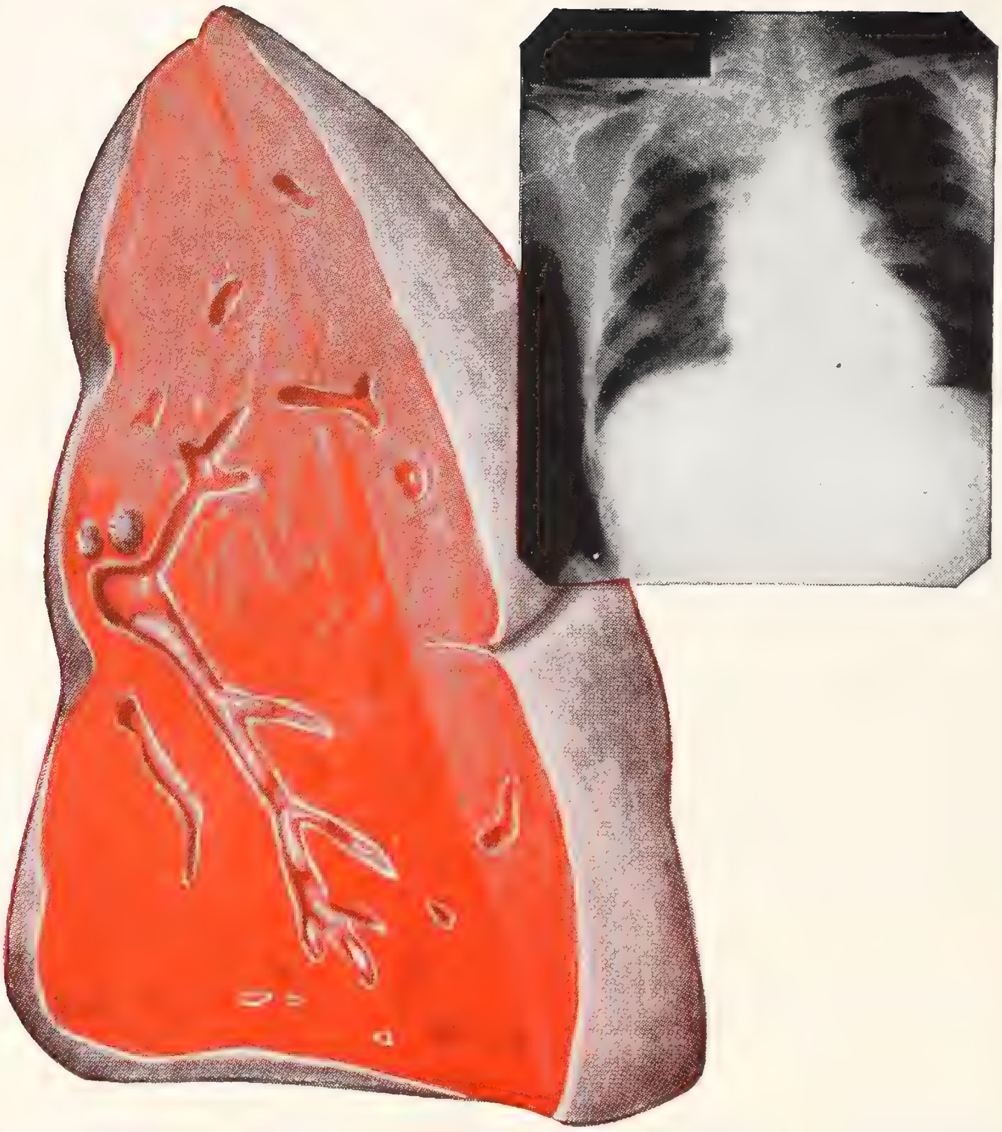

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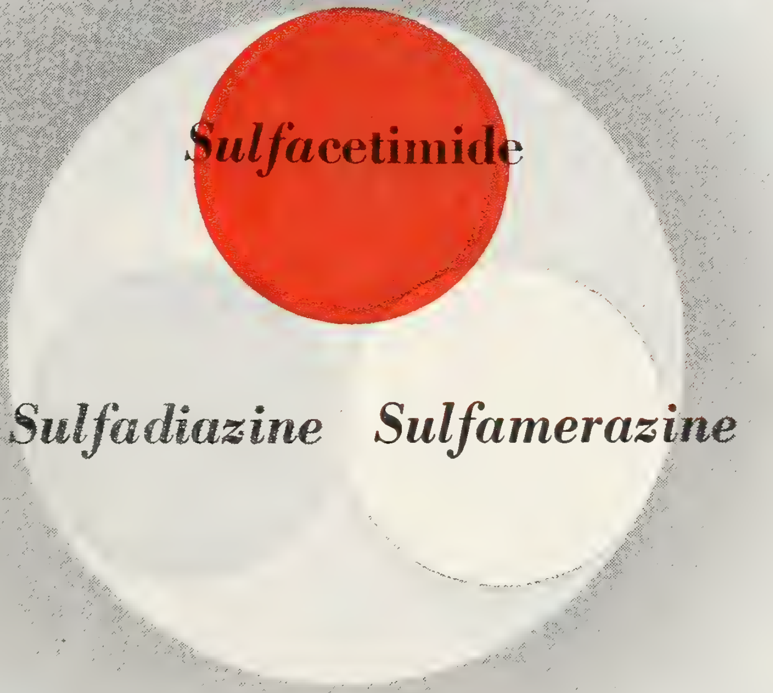

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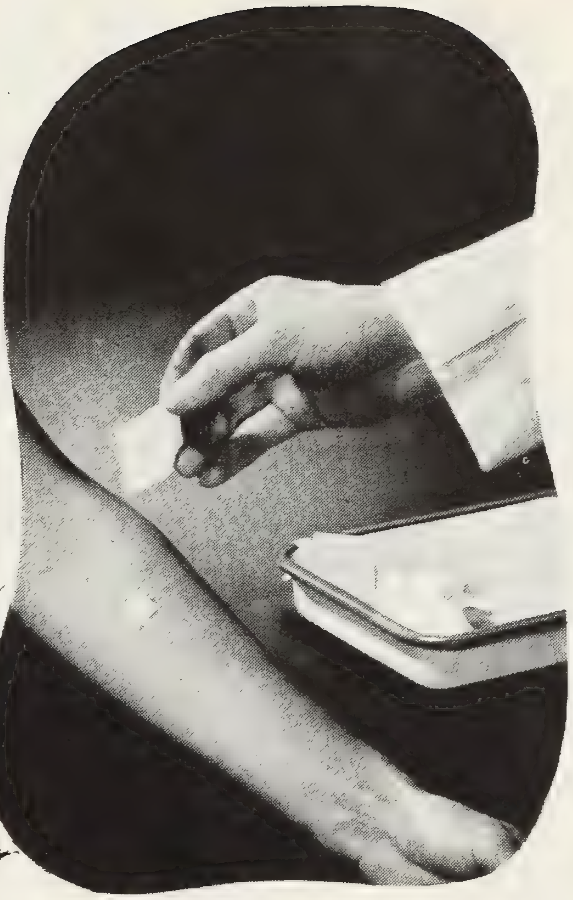

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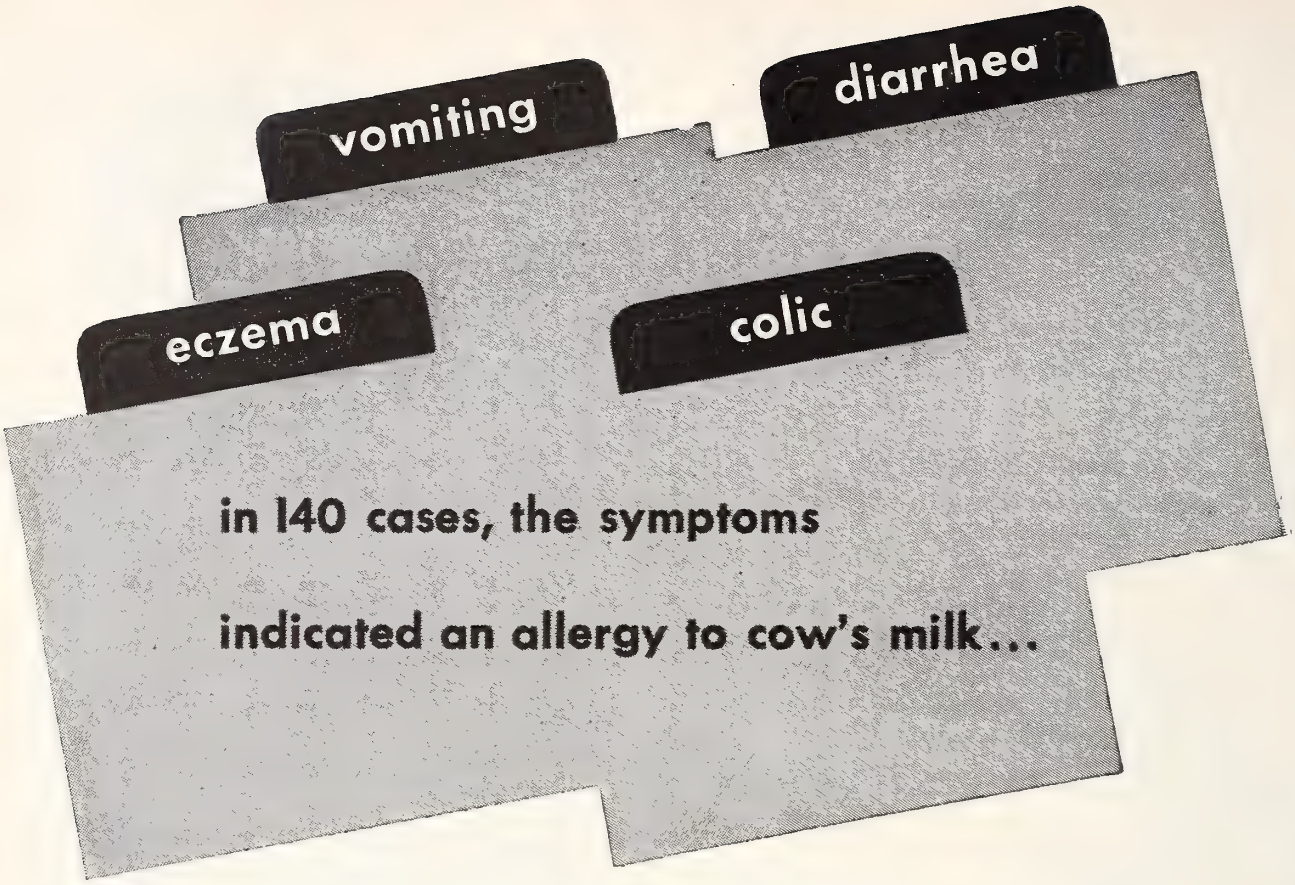

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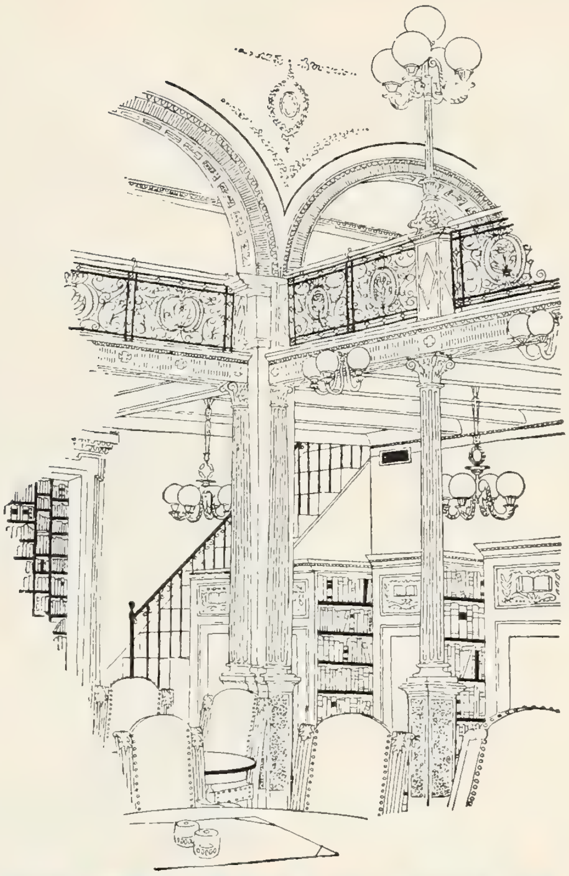

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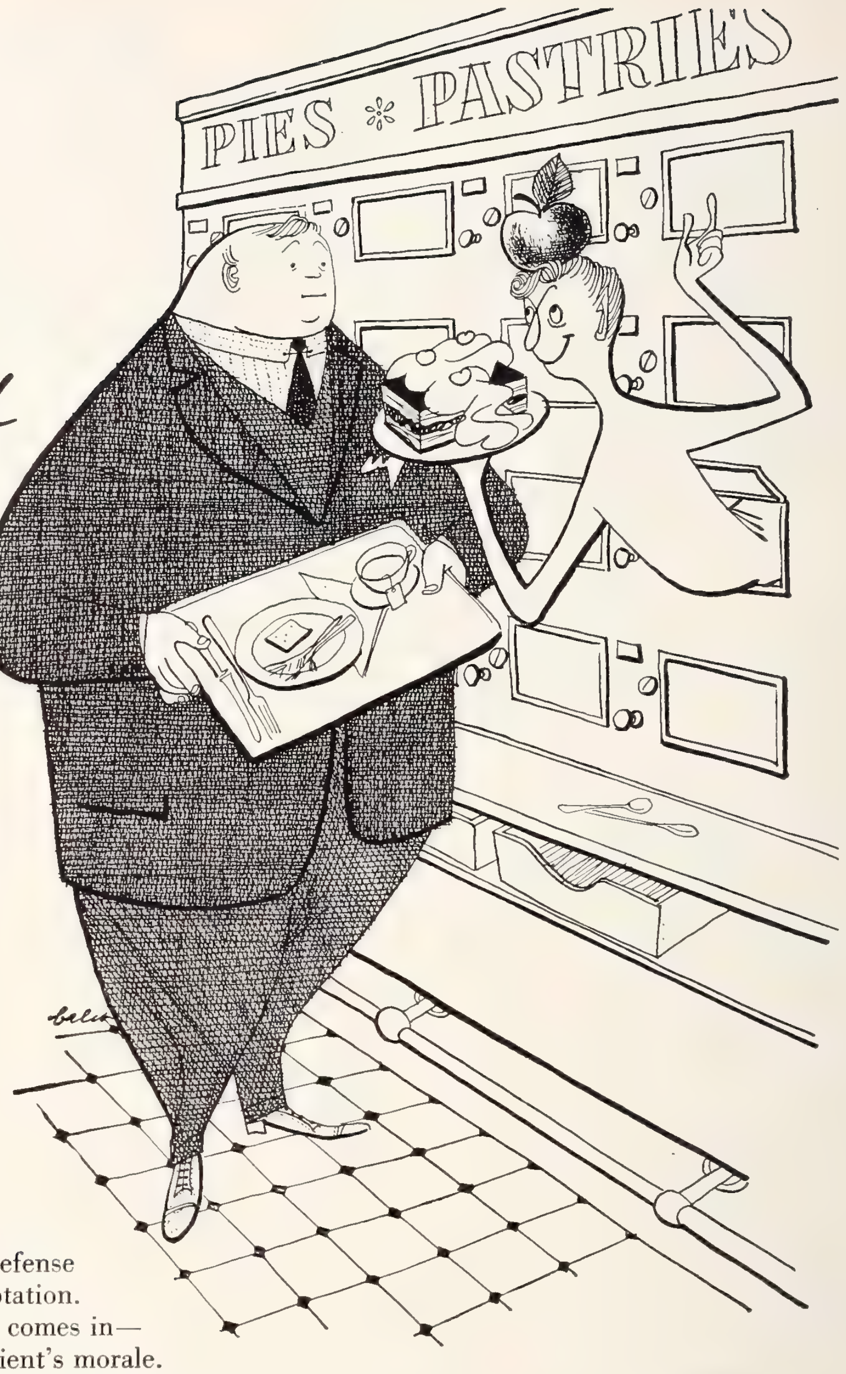

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1. Hutcheson, J. M.: Management of Cardiac Failure. *Virginia Med. Monthly,* 74:458, Oct., 1947.
2. Noth, P. H.: Pick's Disease: A Record of Eight Years' Treatment with Salyrgan, Ammonium Nitrate, and Abdominal Paracentesis. *Proc. Staff Meet. Mayo Clin.,* 12:513, Aug. 18, 1937.

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	Beef Round	Lamb Leg	Pork Loin	Veal Shoulder
Minerals, total[2]	2.0 Gm.	1.8 Gm.	1.8 Gm.	2.0 Gm.
Calcium[2]	22 mg.	20 mg.	20 mg.	22 mg.
Chlorine[3]	147 mg.	136 mg.	125 mg.	147 mg.
Copper[3]	0.2 mg.	0.2 mg.	0.2 mg.	0.2 mg.
*Iodine[4] (Ohio animals)	0.02 mg.	0.03 mg.	Data not available	0.01 mg.
Iron[2]	5.8 mg.	5.4 mg.	5.0 mg.	5.8 mg.
Magnesium[3]	46 mg.	42 mg.	39 mg.	46 mg.
Phosphorus[2]	360 mg.	426 mg.	372 mg.	398 mg.
Potassium[3]	661 mg.	610 mg.	559 mg.	661 mg.
Sodium[3]	164 mg.	152 mg.	139 mg.	164 mg.
†Cobalt[5]	0.0002 mg.	———	Data not yet available	———
†Manganese[3]	0.03 mg.	0.03 mg.	0.02 mg.	0.03 mg.
†Zinc[5]	9.4 mg.	———	Data not yet available	———

*Iodine content of meat varies with the iodine content of feed of the animals.
†Needed in trace amounts only.

The average values for iron, phosphorus, and copper of the four kinds of meat shown constitute about 46, 25, and 100 per cent, respectively, of the National Research Council's recommended daily allowances for adults, and the average values for chlorine, potassium, and sodium constitute about 14, 63, and 16 per cent, respectively, of the estimated daily adult needs, as based on mineral balance studies.[6] Although no specific information is available on the quantitative needs for cobalt, magnesium, manganese, and zinc, nutrition information would suggest that the amounts reported above have nutritional importance or significance.

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1. Recent estimates of the U. S. Department of Agriculture indicate that the per capita consumption of meat in the United States approaches seven ounces per day.
2. Watt, B. K., and Merrill, A. L.: Composition of Foods—Raw, Processed, Prepared, In Agriculture Handbook No. 8, United States Department of Agriculture, 1950.
3. Estimated on basis of protein content of meats. Sherman, H. C.: Food Products, ed. 4, New York, The Macmillan Company, 1948, p. 155.
4. Ohio animals; varies with iodine content of feed. Johnson, H. J.: Bridges' Dietetics for the Clinician, ed. 5, Philadelphia, Lea & Febiger, 1949, p. 800.
5. Mitteldorf, A. J., and Landon, D. O.: Analytical Chemistry; Spectrochemical Analysis of Beef for Mineral-Element Content, Armour Research Foundation of Illinois Institute of Technology. In Press.
6. Dauphinee, J. A.: Sodium, Potassium, and Chloride Malnutrition, Including Water Balance and Shock, in Jolliffe, N.; Tisdall, F. F., and Cannon, P. R.: Clinical Nutrition, New York, Paul B. Hoeber, Inc., 1950, p. 341.

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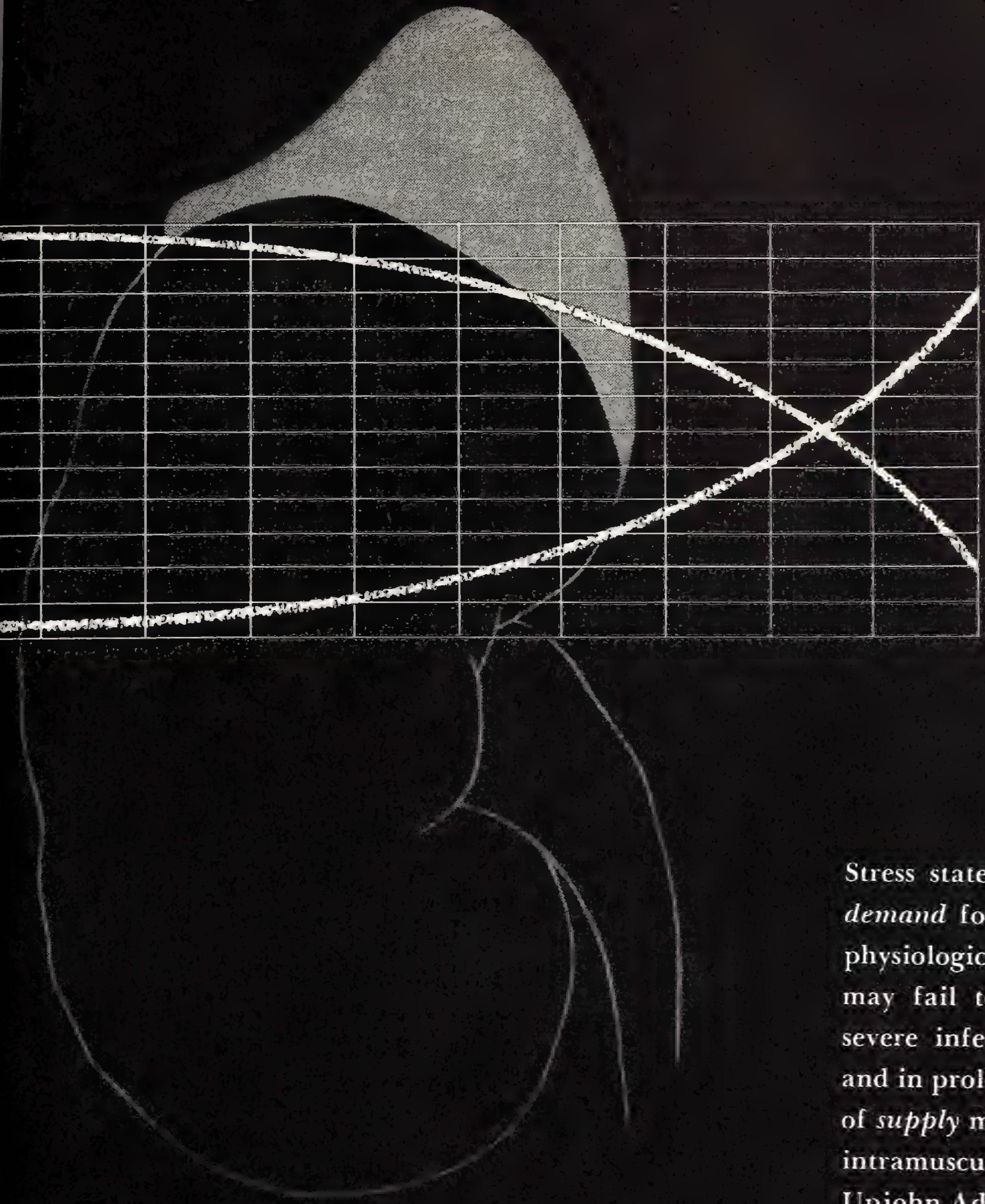

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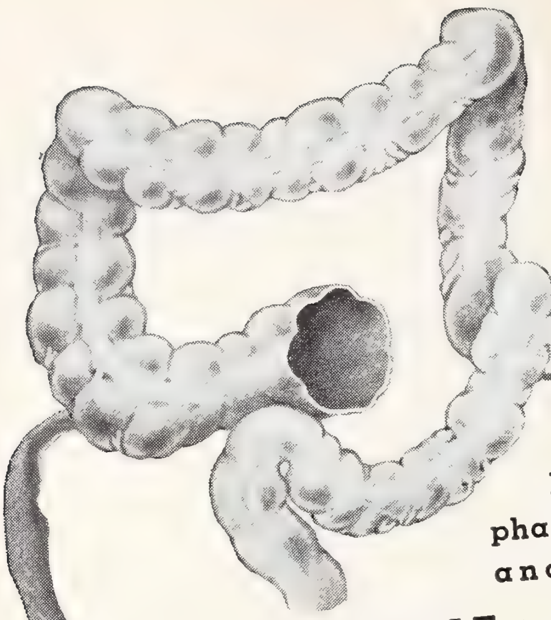

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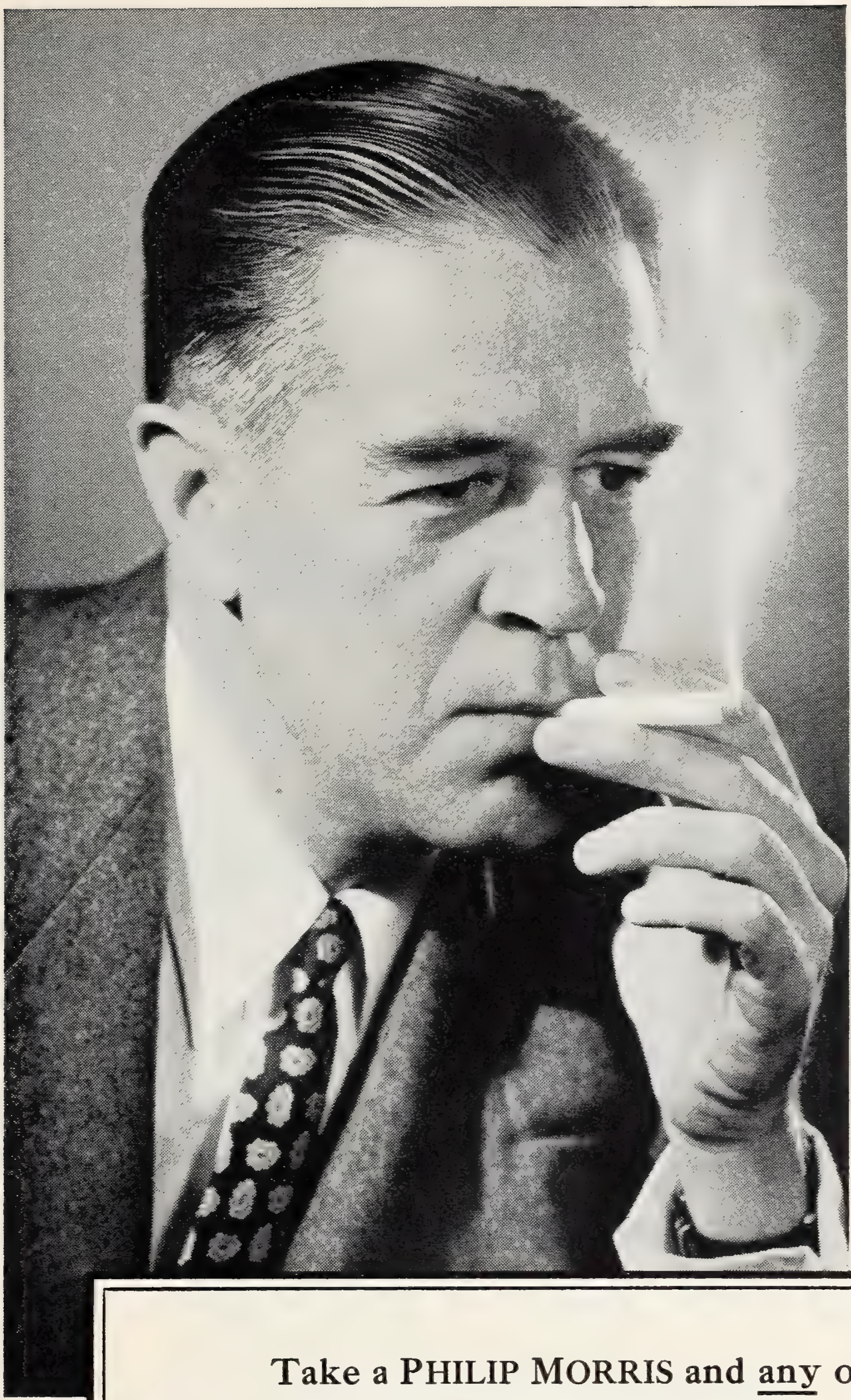

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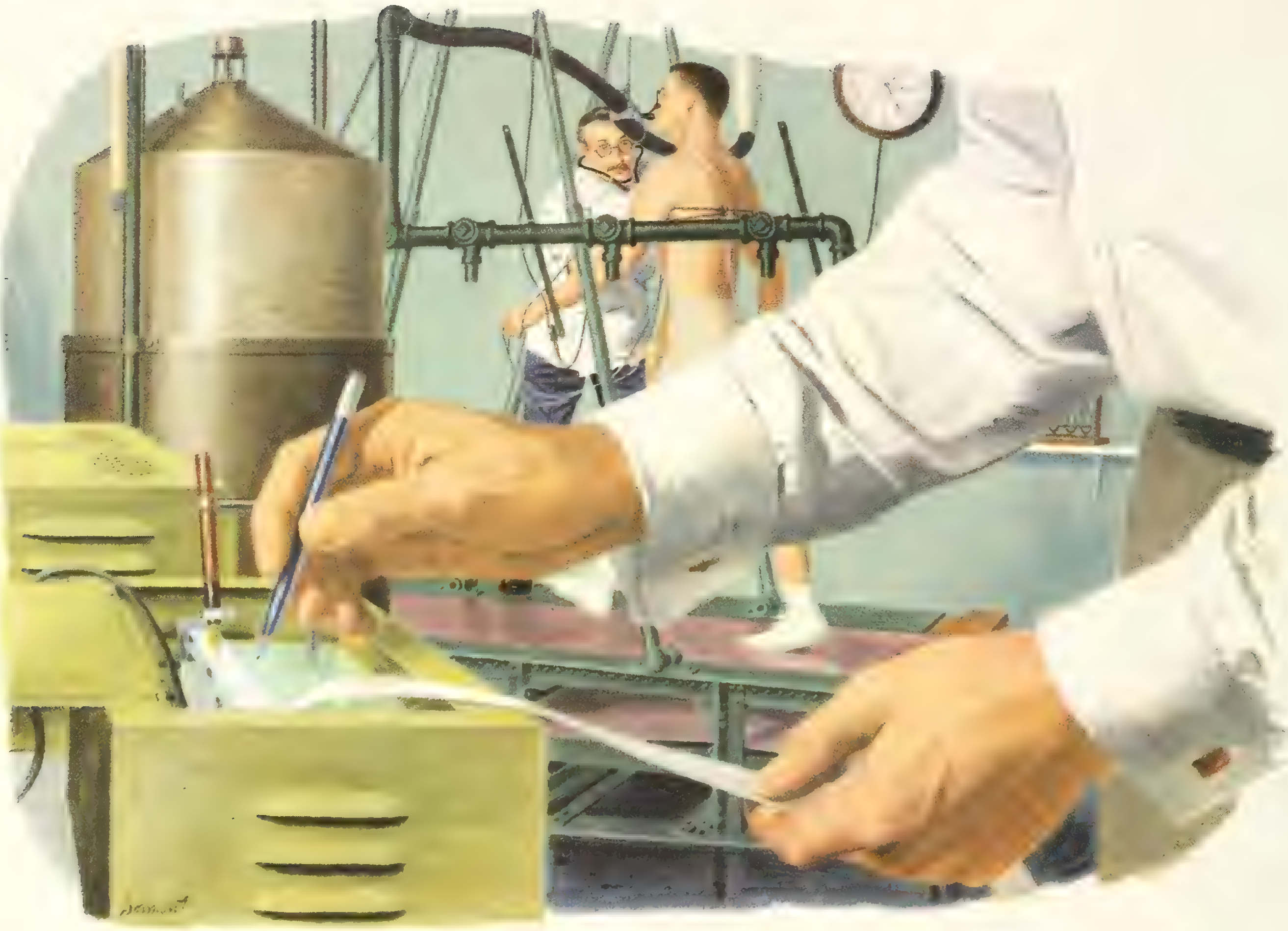

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 **March, 1952** **Number 3**

CORTISONE IN ALLERGIC MIGRAINE

J. S. BLUMENTHAL, M.D., F.A.C.P.

Minneapolis, Minnesota

WHILE allergic migraine is regarded as a disease entity characterized by periodic, usually unilateral headaches, associated with nausea, vomiting, various sensory and motor disturbances and a marked hereditary factor, it is also apparent that allergy may cause other types of headaches that do not have all these attributes. The diagnosis of migraine, however, must include at least some of the following:

> "1. Recurrent headache, usually throbbing and unilateral at onset, occurring against a background of relative well-being.
>
> "2. Temporary visual disorders preceding the headaches, such as scintillating scotomas, photophobia, hemianopsia and blurred vision.
>
> "3. Nausea, vomiting and irritability, occurring at the height of the attack.
>
> "4. Personality characteristics of inflexibility and shyness in childhood, giving rise to adult perfectionism, rigidity and resentment, ambitiousness and often efficiency.
>
> "5. A history of migraine in the immediate family.
>
> "6. Less frequent symptoms, such as parasthesias, speech disorders, dizziness, sweating and other vasomotor disorders.
>
> "7. Relief by ergotamine derivatives in about 85 per cent of the cases."[7]

The treatment of this condition has been a problem since its recognition. This is, of course, due to the frequently unknown cause of migraine. The present normally accepted theory of the mechanism is the vasomotor theory of imbalance involving spasm and dilatation. The exact cause of this imbalance and the factors responsible are, of course, the usually unknown and important ones. The very multiplicity of concepts—which include disorders of any and all of the endocrine glands, vitamin and dietary deficiencies, fluid imbalance, toxic agents, gastrointestinal and hepatic disorders, trauma, psychological factors—speaks for itself. While allergy as a major factor in the etiology of migraine has received increasing recognition, it is often impossible to detect the allergic agent and just as often impossible to eliminate it from the patient's environment. Successful treatment based on any and all of these theories frequently are reported. The most consistently symptomatically successful reports have come from the use of ergotamine derivatives. Prevention of an attack may often be best accomplished by psychotherapy and regulation of the life of the individual. There are, however, all too frequently patients who in spite of all efforts, all theories, all medications do not respond to any great degree. These patients have symptoms severe enough and frequent enough to constitute one of the most dramatic and serious of medical problems. It is these patients that require a new agent to alleviate their diffculties.

As allergic migraine certainly must also be regarded as primarily a disease of adaptation, Selye's[18] concept of the general adaptation syndrome is of great help in understanding this condition. Furthermore, as allergy is probably a major factor in a great many cases of migraine,[6] it may be theorized that the antigen stimulates the reticuloendothelial system, especially the plasma cells, to produce antibodies. The reaction of the allergen and the antibody results in toxic products which directly or indirectly stimulate

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From the Section of Allergy, Department of Internal Medicine, University of Minnesota, Minneapolis.

the hypophysis to produce ACTH. Normally both mineralo-corticotrophic and gluco-corticotrophic stimuli affect the adrenals proportionately. If the response is too violent or the gluco-corticoids production is inadequate, allergic reactions result. As gluco-corticoids mitigate the response of shock organs to allergic stimuli and mineralo-corticoids increase the responsiveness, the degree of sensitivity would depend upon the balance between the two. How these gluco-corticoids diminish sensitivity in cells is not understood.

Immediately after the announcement that cortisone relieved the symptoms of rheumatoid arthritis, it was natural, as indicated by Selye's concept, to assume at once that all the so-called collagen diseases and hypersenstive states would be similarly affected, including migraine. White[24] has shown that animals that have had an adrenalectomy show extreme susceptibility to anaphylactic shock. Pretreatment of these animals with cortisone or ACTH gives them protection.[2] Rose and his associates[13] had demonstrated on rats the direct relationship between adrenal cortex and the metabolism of histamine and its specific enzyme, histaminase. The tissue and blood histamine was markedly increased and the mechanism for the destruction of histamine impaired following adrenalectomy.[14] They also demonstrated that the ability of histamine aerosols to produce dyspnea was blocked in four patients by ACTH therapy.[15,16] Segal[19] noted that the abnormal sensitivity of the asthmatic patient to injected histamine was lessened or abolished by treatment with ACTH on repeated injections; but Curry[3] noted no such protection against histamine or methacholine by single doses of 50 to 100 mg. of ACTH—an observation also made by Herschfus.[9] These studies would indicate that ACTH probably does not relieve bronchial allergic spasm through an antihistaminic or anticholinergic action. Cortisone and ACTH, as reported by Kendall,[10] are powerful tools with which it is possible to study problems related to the etiology and treatment of a large group of diseased. Though cortisone and ACTH can produce profound changes in the person with these conditions, the mechanism of action is still very imperfectly understood. It is certainly not a deficiency as no such deficiency of cortisone has been noted in asthma, or other conditions in which it is of such dramatic though temporary benefit. Sayers[17] suggests that cortisone acts by: (1) interference with the release of or toxic action of anaphylactic substances produced in antigen—antibody reactions; (2) alteration in cell permeability through its action on hyaluronidase; or (3) suppression of responses in mesenchymal tissues. It is easy to see that these types of action would definitely influence allergic manifestations.

When cortisone is given to rabbits, Rogan[11,12] noted a delay in the development of all elements of connective tissue response. This effect would, of course, interfere with the connective tissue reactions seen not only in hypersensitivity but also in disease activity and wound healing. Taubenhaus and Amromin[23] also noted an inhibition effect of cortisone on collagen formation and fibroblasts—the opposite effect from that of desoxycorticosterone.

White[24] believes that cortisone acts in the hypersensitive state by: (1) alteration in the relative concentration of antigen and antibody in the tissues; (2) alteration in the tissue factors which influence the combination; or (3) alteration in the tissue response to antigen-antibody reaction.

Be all this as it may, it is sufficient to state that there is early in the course of treatment with ACTH or cortisone physiological changes due to induced hyperactivity of the adrenal cortex. While the conditions treated with ACTH and cortisone have included almost all serious ones the body is heir to, some of the most dramatic results have been reported in the field of allergy with nearly 100 per cent encouraging though temporary results. As would be deduced from the effects of the hormone and confirmed by the literature,[21] absolute contraindications to the use of cortisone are few but it should be used with caution in diabetes mellitus, psychotic disorders, cardiac failure, during major surgery, severe infections, myocardial infarction, pulmonary embolus, cerebral accidents and probably because of its effect on connective tissue, in tuberculosis, syphilis and peptic ulcers. Equally important is the question of the effects of long continued administration and large dosage. As pointed out by Kendall and others, the answer is not a simple one. In general, however, the response is neither rapid nor long continued. The effects are reversible when the hormone is discontinued.

Beyond that, it is neither necessary nor desirable to give large doses for a prolonged period of time.[20] The immediate undesirable effects reported are fluid retention, moon face, acne, hirsuitism,[1] irregular menses, changes in mood or psyche, nervousness, fatigue, transient parasthesias, weakness, hypercoagulability, minor changes in carbohydrate metabolism and nitrogen balance.[21] These are usually not marked and are easily controlled by a reduction in dosage compatible with comfort. While the weakness noted at time has no constant relation to low serum potassium, it is at times desirable to give potassium chloride when the level is below normal. Low sodium diets will usually control fluid retention though very infrequently diuretics may be indicated. Estrone or progesterone will frequently prevent the most annoying of the symptomatic side effects in menopausal women. Above all, suboptimal dosage will minimize these undesirable features as well as the danger of poor healing, missing new clinical symptoms such as active infections, pain, fever, peritoneal irritation from perforated ulcers[4,5,8] as well as the changes of hypperadrenocorticism.[22]

Because of these reports, and as cortisone became more available and relatively less expensive, it was used when the opportunity presented itself to give this hormone to a patient, with migraine probably allergic, who had failed to respond to all types of medication, was desperate, was a definite allergic individual, could afford the treatment, for a prolonged period of time if necessary, and in whom there were no apparent contraindications.

Case Report

E. W., a thirty-six-year-old, white, married executive came to see me February 28, 1950, with complaints of right-sided headache for the past ten years but markedly worse the last five months; dizzy spells of the same duration; hives all his life; asthma ten years and a stuffy nose with a copious watery discharge all his life. The headache was accompanied by nausea and vomiting and usually started with a peculiar odor in his nose, swelling of his eyes and increased plugging of his nose. The attacks had been about the same—once a month up to five months ago and moderate in severity, lasting from a few moments to several hours. Since then they have increased in duration, severity and frequency until now they are more or less constant. Suicide has been seriously and frequently considered. Alcohol was the only known aggravating factor. His asthma, hives and stuffy nose have remained the same through the years, though these are aggravated by dust, chocolate, lemons. There is no seasonal variation or environmentl factors that have been noted by this very intelligent individual. The migraine is so much the overwhelming symptom that all else is secondary. The only symptomatic relief has been given by cafergot (1 mg. of ergotamine tartrate and 100 mg. of caffeine alkoloid) if taken very early in an attack—with relief only at times and only moderate—and in dosage of up to eight tablets at a time and frequently. He had used this dangerous amount in desperation and with full knowledge of the risks involved. Treatment by many capable internists, psychiatrists and allergists with diets, desensitization, climatic changes, hospitalization, fever therapy, innumerable antihistamines, antibariums, parasympathetic depressants and sympathetic stimulants, and nonspecific drugs have been of no avail. He was truly desperate. His past history was essentially negative. The family history showed that his mother had migraine headaches and hives which decreased in intensity with age. One sister, aged forty, and one brother, aged twenty-six, have migraine headaches of moderate severity but no other allergic manifestations.

Physical examination is essentially negative but for the boggy allergic rhinitis type of mucous membrane, and a few expiratory wheezes in the lungs. Routine laboratory work was negative but for a 4 per cent eosenophile count in the peripheral blood. Chest plate, electrocardiogram, basal, skull pates were normal. Skin tests, intradermally, showed very many positive reactions but did not correlate with the history.

Because the patient was really in great distress and very depressed, histamine was given intravenously daily for eighteen days with moderate relief of headaches. Histamine, subcutaneously, was then given daily. At this time the patient was started on an elimination of contact and inhalants which were positive on skin tests. While the allergic rhinitis improved on this regime, the asthma was the same—almost nightly attacks. On elimination diets this also improved. The patient continued on this regime with daily injections of histamine given by the patient himself until October 10, 1950. During this period, however, though his headaches remained less severe, he still had to take 2 tablets of cafergot once or twice a day. Beyond that, he was very lethargic. He said he could not do his work if he took histamine because of lack of energy, and because of his headaches if he did not take histamine. Graduations in dosage were tried as was desentization with dust and testosterone but to no avail.

On October 10, 1950, he was started on 200 mg. of cortisone daily for two days—with all other medication stopped—then 100 mg. daily for one week and the dosage gradually reduced until October 26 when the hormone was discontinued. After the first dosage he felt much better, and had no headaches, felt elated as is usual with cortisone but still had some wheezing and rhinitis. His urine, weight, and blood pressure remained normal during treatment. He had few headaches until November 17, 1950, when he started to become progressively worse and returned to his pretreatment level. On December 7, 1950, he returned to see me, at which time cortisone was again started with a similar response to the first series. On December 16 he was placed on a daily maintenance dose of 50 mg. of cortisone orally (25 mg. a.m. and p.m.). He tried several times to stop or reduce the drug but noted recurrence of symptoms within a few days to such an extent that renewal was urgent. He has been symptom free except for occasional wheezing of mild degree. He is at full time work and the only complaint he has is as to the expense of therapy. No complications have arisen and there has been no change in physical or laboratory findings.

While cortisone is certainly not the treatment of choice in allergic migraine, his condition, complicated by asthma and rhinitis, which had resisted all other types of therapy and in which the situation was truly desperate, did respond to this hormone. I will attempt at intervals to stop treatment and/or reduce dosage. Up to the present, under continuous control, no complications have arisen with a dosage of 50 mg. of cortisone daily. It is to be hoped that time and aging will, as usual, take care of the probable basic cause of his migraine: the ability of his cranial vessels to become initially constricted with later hypotonicity.

References

1. Behrman, H. T., and Goodman, J. J.: Skin complications of cortisone and ACTH therapy. J.A.-M.A., 144:3 (Sept.) 1950.
2. Brown, Ethan Allan: ACTH preliminary considerations. Quart. Rev. Allergy, 4:67, 1950.
3. Curry, J. F.; Roche, R. J.; Doolin, P. D., and Kyle, L. H.: Experimental study of ACTH in induced asthma. Am. J. Med., 9:396, 1950.
4. Editorial: ACTH and cortisone. J.A.M.A., 145: 2 (Jan.) 1951.
5. Editorial: ACTH and cortisone in active infections. Arch. Int. Med., 87:1 (Jan.) 1951.
6. Feinberg, Samuel M.: Allergy in Practice. Chicago: Year Book Publishers, 1944.
7. Friedman, Arnold P., and Storch, Theodore, J. C. Von: Recent advances in treatment of migraine. J.A.M.A., 145:17 (April 28) 1951.
8. Habif, D. V.; Hare, C. C., and Glaser ,G. H.: Perforated duodenal ulcer after ACTH therapy. J.A.-M.A., 144:12 (Nov.) 1950.
9. Herschfus, J. A.; Levinson, L., and Segal, M. S.: ACTH therapy in bronchial asthma. Histamine and methacholine tolerance in acute experiment and during prolonged treatment. Bull. New England M. Center, 12:139, 1950.
10. Kendall, Edward C.: Cortisone. Ann. Int. Med., 33:4 (Oct.) 1950.
11. Rogon, C.; Horoes, E. L.; Platz, C. M.; Meyer, K., and Blunt, J. W.: Effect of cortisone on production of granulation tissue in the rabbit. Proc. Soc. Exper. Biol. & Med., 72:718 (Dec.) 1949.
12. Rogon, C.; Horoes, E. L.; Platz, C. W.; Meyer, K.; Blunt, J. W., and Lattes, R.: The effects of ACTH and cortisone on connective tissue. Bull. New York Acad. Med., 26:251 (April) 1950.
13. Rose, B.: Studies on the effect of ACTH on eosinophilia and bronchial asthma. Proc. First Clinical ACTH Conference. Mote, J. R., M.D., ed. Philadelphia: The Blakeston Co., 1950
14. Rose, B., and Browne, J. S. L.: The distribution and rate of disappearance of intravenously injected histamine in the rat. Am. J. Physiol., 124:412, 1938.
15. Rose, B.; Pare, J. A. P.; Pump, K., and Stanford, R.: Preliminary report on pituitary adrenocorticotropic hormone (ACTH) in asthma. Canad. M.A.J., 62:6, 1950.
16. Rose, B.; Pare, J.A.P.; Pump, K.; Stanford, R., and Johnson L. G.: Influence of ACTH on the excretion of histamine and histidine in patients with allergic states or rheumatoid arthritis. J. Clin. Investigation, 29:841, 1950.
17. Sayers, G.: The adrenal cortex and homeostasis. Physiol. Rev., 30:241 (July) 1950.
18. Selye, H.: The Physiology and Pathology of Exposure to Stress. Montreal, Canada: Atta Inc., 1950.
19. Segal, Maurice, S., and Herschfus, Aaron J.: ACTH and cortisone in the management of the hypersensitivities with particular reference to bronchial asthma. Ann. Allergy, 8:6 (Dec.) 1950.
20. Slocumb, C. H.; Palley, H. F.; Hench, P. S., and Kendall, E. C.: Effects of cortisone and ACTH on patients with rheumatoid arthritis. Proc. Staff Meet., Mayo Clin., 25:476 (Aug.) 1950.
21. Sprague, R. G.; Power, M. H., and Mason, A. L.: Physiologic effects of cortisone and ACTH in man. J.A.M.A., 144:16 (Dec.) 1950.
22. Stoerk, H. C.: The inhibition of the tuberculin reaction by cortisone in vaccinated guinea pigs. Federation Proc., 9:345 (March) 1950.
23. Taubenhaus, M., and Amromin, G. D.: The effects of the hypophysis, thyroid, sex steroids and the adrenal cortex upon granulation tissue. J. Lab. & Clin. Med., 36:7, 1950.
24. White, A.: Role of the adrenal cortex in immunity. J. Allergy, 21:273, 1950.

REVIEWS OF MEDICAL MOTION PICTURES

The Committee on Medical Motion Pictures has completed the 1951 supplement to the second revised edition of the booklet entitled "Reviews of Medical Motion Pictures." This supplement contains 90 reviews of medical and health films reviewed in *The Journal of the A.M.A.* from January 1, 1951, through December 31, 1951. Each film has been indexed according to subject matter. The purpose of these reviews is to provide a brief description and an evaluation of motion pictures which are available to the medical profession.

Copies have been sent to the secretary of each of the State Medical Societies. Complimentary copies will be sent to County Medical Societies and other medical organizations upon request from: Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

HISTOPLASMOSIS

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IN 1905, S. T. Darling was the pathologist at Ancon (now Gorgas) Hospital, Canal Zone, Isthmus of Panama. In December of that year, on making histologic examinations of material taken at necropsy of a Negro from Martinique, who had died at the age of twenty-seven years, Darling[2] made an important finding. In the lungs, spleen and liver were tubercles which grossly resembled those of tuberculosis. On microscopic examination, however, in large mononuclear cells lying in the pulmonary alveoli and free in the plasma of the spleen and bone marrow, were multiple round to oval bodies, 1 to 4 microns in diameter, with refractile rims. In 1908 Darling[3] reported in detail three cases in which these bodies were found generally in lungs, bone marrow, spleen and liver, and in ulcerations of the small and large intestine. He compared his findings with those of Wright, Leishman and Donovan, reported in 1903, and concluded that the organisms that he had found were not the same as those which they had described and which became known as Leishman-Donovan bodies.

Darling's recorded clinical findings were meager, for the patients had been admitted in terminal stages of the disease, but constant fever, emaciation, enlarged spleen and liver, cough, vomiting, diarrhea, anemia and leukopenia were noted. Darling considered the disease to be a general protozoan infection and suggested that the organism be named "Histoplasma capsulatum" and the disease, "histoplasmosis."

Following the writings of Darling there were no more reports of this disease until, in 1926, a case originating in Minnesota was announced by Riley and Watson.[11] By 1934, ten cases had been reported, all ending fatally.

In that year, 1934, DeMonbreun[4] recovered the causative organism in the first case in which diagnosis was made while the patient was alive. A baby, six months of age, was admitted to the hospital with fever, anemia, cough, enlarged spleen, enlarged liver, and roentgenologic findings characteristic of severe bronchitis. The diagnosis was made by finding the yeast-like organisms in films of peripheral blood. The patient died twelve days after admission to the hospital. At necropsy, tissue from the spleen was obtained and was used for inoculation of several types of media; a fungus was grown which assumed both mycelial and yeast-like forms. The latter grew on media high in protein, and DeMonbreun concluded that the yeast-like form was the parasitic and pathogenic form. This fungus, given intravenously to monkeys, produced a disease like that seen in the child, both from clinical and pathologic standpoints, and the yeast-like and mycelial forms were recovered from the test animals.

The fungus has been classified as one of the moniliaceae of the Fungi imperfecti. The mycelial form has branching, septate hyphae with terminal tuberculate conidia and can be grown on any media favorable to fungi. The yeast-like form, which is thin-walled and oval, and reproduces from a single bud at one end, can be found on passing the fungus through animals or by growing the fungus on a medium high in protein. DeMonbreun postulated that it might occur as a sprophytic fungus free in nature.

As the disease became better understood, more cases were reported, until 123 had been described in the literature by 1949. No doubt the correct diagnosis has been made in a number of cases which have not been reported. The disease is recognized as a systemic one. At first it was thought to be invariably fatal, but in recent years an increasing number of reports have been made of a possible subclinical form, characterized by pulmonary calcification and a positive skin test.

The disease has been encountered in most of the countries of the world but at least three fourths of the cases have been reported from the United States. This latter fact is considered to be attributable more to the interest which the condition has aroused in the United States than to high comparative prevalence here. Patients have come from twenty-five states and, of these, a predominant number have resided in states situated in the middle of the Mississippi Valley and west of the Appalachian foothills.

Patients ranging in age from two months to seventy-seven years have been attacked, and patients in at least a sixth of reported cases have been in the first year of life. The disease occurs twice as frequently among males as among females.

In the presence of active, acute infections the clinical symptoms may refer the examiner to one or more bodily systems, or they may be generalized, as the disease is essentially a systemic one. There is irregular fever, loss of weight even to such degree that the patient is emaciated, has marked weakness and diaphoresis. Any portion of the skin or mucous membrane may present ulceration, granulomatous swelling and papules. Such lesions, if they are on the lips, tongue, tonsils, palate or pharynx, are very tender and often make it difficult for the patient to eat. The cervical as well as the inguinal lymph nodes may become tender. Respiratory symptoms may be prominent. Among 123 cases of histoplasmosis collected by Hodgson, Weed and Clagett[7] were found sixty-two in which they considered pulmonary histoplasmosis to be proved. A persistent cough, with or without expectoration, is a dominant symptom. Dyspnea and pleural pain also are present and, less frequently, hemoptysis. The gastrointestinal manifestations of anorexia, nausea and vomiting may accompany the disease when it affects organs other than those of the gastrointestinal tract but, when the gastrointestinal tract becomes ulcerated, abdominal distention, diarrhea and melena are added. In terminal stages there may be neurologic symptoms, including signs of meningitis.

The physical findings are variable. They may be predominantly referable to one organ, but more often the lesions are multiple, and the signs, therefore, are often referable to more than one organ. Usually, there is some pallor and evidence of loss of weight. The skin lesions take the forms of subcutaneous nodules, abscesses, ulcerations and purpuric spots and may appear anywhere on the skin. The mucous membranes are very vulnerable. Weed and Parkhill[13] reviewed seventy-three cases and found that, in twenty-four, oral lesions were present; moreover, they added four cases in which the presenting lesions were of the mouth and pharynx. These lesions were deep, sharp-edged ulcers of the tongue and granulomatous plaques of the floor of the mouth, tongue, palate and pharynx.

On roentgenograms, evidence of pulmonary involvement is in no definite pattern and in only about a third of the cases the formation is found which usually is attributed to a fungus infection; that is, peribronchial infiltration extending radially from the hilus. In the remaining cases the lesions may appear as localized infiltration, pneumonic consolidation, generalized miliary involvement, or as definite nodules. Cavitation is of infrequent occurrence but has been found; more frequently there is calcification. Hilar nodal involvement and mediastinal widening are evident in cases wherein lymphadenopathy is prominent.

The liver and spleen were enlarged in Darling's cases, and such enlargement has been described in more than half of the cases reported since. Ulcerations at the anal margin tend to be sites of hemorrhage, as do similar ulcers in the sigmoid. Hypertrophy of superficial lymph nodes or of all lymph nodes frequently is prominent. The cervical nodes are especially affected and are easily accessible for biopsy.

Less common physical evidences of the disease have been cited by Parsons and Zarafonetis[10] in their review of seventy-one cases and report of seven. Involvement of the middle ear and aural canal occurred in eight of the seventy-one cases, and true otitis media in five of the eight; in one case there was massive involvement of the nasal septum. A mitral lesion was diagnosed in life and, at necropsy, vegetative masses were found on the valve; these vegetative masses contained the causative organism. Evidence of moderate to severe anemia and leukopenia frequently is found on laboratory examination.

Since DeMonbreun[4] in 1934 gave proof of the etiologic agent, the diagnosis of histoplasmosis is being made with increasing frequency while the patient is alive. Cultures are highly reliable. Culture of sputum, of material obtained by gastric lavage, of pleural fluid, and of bronchial secretions obtained by bronchoscopy should lead to correct diagnosis of pulmonary histoplasmosis. Culture of material obtained at surgical operation or at biopsy often is the means of making a diagnosis; this is a valuable adjunct to histologic examination. Weed and Parkhill[13] have advised using the emulsified tissue for inoculation of blood agar plates; the medium contains 50 units each of penicillin and streptomycin to 1 cc. to inhibit bacterial growth.

Direct smear from an ulcerated surface may give the diagnosis; however, only in ulcers of recent development is the fungus usually demonstrable histologically.

The histologic picture at biopsy is a composite of necrosis, exudation and proliferation. The necrotic tissue only occasionally undergoes liquefaction. The exudate is made up of polymorphonuclear leukocytes and lymphocytes and the proliferation is composed of fibroblasts and macrophages. It is in this last type of cell that the round to oval, basophilic staining, causative fungus, Histoplasma capsulatum, with its refractile rim, is found, usually packing the cytoplasm with its members.

Sternal puncture has been responsible for several positive diagnoses, the material being subjected to the same procedures as biopsy material which, in fact, it is. Also, a smear may be made of this material, but a smear is less likely to give positive findings. Culture of peripheral blood has given positive results usually in the last days of a fulminating case of the disease, or at the height of an acute febrile episode.

The skin test is having more general use, and is of special value in epidemiologic investigation of pulmonary lesions. Its accuracy has been under discussion in that it has been found to give cross reactions when applied to persons sensitized to other fungus infections, especially in instances of blastomycosis and coccidioidomycosis; even the common Candida albicans has been suspected of entering into the reactions. Smith and associates[12] found an increasing number of nonspecific cross reactions to coccidioidin as the sensitivity to histoplasmin rose; however, they did not think the cross reactions interfered with the interpretation. They also found that if the reactor was dominantly sensitive to coccidioidin, there was a much higher degree of cross reaction to the histoplasmin test than otherwise, and in addition, those who were in the process of coming down with the disease, coccidioidomycosis, and were positive to coccidioidin, gave cross reactions with both histoplasmin and blastomycin.

Iams[8] has made a study of all the reports of skin tests made with histoplasmin, a total of 27,780 tests. Of these, in 38.6 per cent the result was histoplasmin positive. In 18,746 instances, both the histoplasmin and the tuberculin tests were done, with the following results: histoplasmin positive, 44.13 per cent; tuberculin positive, 8.41 per cent and, finally, both histoplasmin positive and tuberculin positive, 4.05 per cent. In an even further classification, histoplasmin and tuberculin tests were done on 2,577 persons whose pulmonary roentgenograms gave evidence of calcification; of these, 82.5 per cent were histoplasmin positive and 18.3 per cent were tuberculin positive. Iams has expressed the belief that the variables that may influence the test are the lot and dose of the antigen, and the sensitivity of the receiver to one or more mycotic antigens.

The complement-fixation and precipitin reactions have been brought into use in the last few years. They are still not entirely reliable because of cross reactions with the antigens of other fungi. Kunstadter, Whitcomb and Milzer,[9] however, reported them to be useful in distinguishing between latent and active histoplasmosis in that the titer reaches the peak in the acute phase.

At necropsy, all tissues of the body have been found to be involved. The most involved organs, in order of frequency of involvement, are the lymph nodes (localized and generalized involvement), liver, lungs, spleen, suprarenal glands, intestinal tract, bone marrow, kidneys and oropharynx. The suprarenal glands may be found to be entirely destroyed by necrosis, and the illness, in such a case, may have been diagnosed as Addison's disease. Grossly, the lesions of the lungs suggest the tubercles of tuberculosis, and it remains for histologic examination to furnish the diagnosis. The general picture is one of necrosis and formation of granulomatous tissue, with or without ulcerations of mucous membranes. The disease has been diagnosed incidentally at necropsy when death was from another cause. Christie[1] reported six such cases. Four of the six patients were infants less than one year of age; Histoplasma capsulatum was cultured from tubercles in the lung and from cervical and mediastinal lymph nodes.

Clinically and histologically, the disease has been confused with toxoplasmosis, cryptococcosis and leishmaniasis, and clinically it often is mistaken for one of the granulomatous diseases, such as syphilis or tuberculosis. Addison's disease, leukemia and blood dyscrasia also have been offered as clinical diagnoses. Histologic diagnoses have included lymphoblastoma, Hodgkin's disease and carcinoma.

In treatment of the disease many substances have been tried but none has proved satisfactory. Various compounds of potassium, antimony, bismuth and arsenic have been used. Radiation has been employed in a few instances for relief of pain from swelling of lesions in the oropharynx. Parsons and Zarafonetis[10] wrote of a lesion of the tongue which first was diagnosed as an epithelioma, grade 1, and which was subjected to radiation but when this lesion recurred it was found to be positive for Histoplasma capsulatum and again was subjected to radiation. Five years later the patient was well. A boy, twelve years of age, who had an infection of the upper part of the respiratory tract, and high fever, and whose thoracic roentgenogram gave evidence of infiltraton of the lung, was treated by Kunstadter, Whitcomb and Milzer[9] with penicillin and salicylates. Early animal inoculations of bronchial secretions and cultures of peripheral blood were positive for Histoplasma capsulatum. Four months later the lung was healed by calcification. Patients have been known to be alive from one to sixteen years after diagnosis; those who lived longest usually had lesions of the skin.

Two cases have been reported by Hodgson, Weed and Clagett[7] in each of which lobectomy was performed for a single pulmonary lesion. One patient was a man, thirty-six years of age, whose symptoms were hemoptysis and abundant sputum. The thoracic roentgenogram gave evidence of a cystic lesion of the lower lobe of the right lung. A culture of sputum yielded Histoplasma capsulatum. The pathologist who examined the surgical specimen reported finding a gray-white mass with a partially necrotic center. This mass consisted of granulomatous tissue composed of necrotic material and fibroblasts which contained Histoplasma capsulatum. Here, the fungus seemed to be invasive rather than to have been phagocytosed by the tissue cells. There was infiltration with lymphocytes, plasma cells and phagocytes containing Histoplasma capsulatum. Two years later physical examination gave a negative result. The other patient was a woman, thirty-five years of age, who had a lesion of the upper lobe of the right lung and whose sputum, when cultured, was positive for Histoplasma capsulatum. The fungus also was grown from the surgical specimen. The woman was well four months later. The authors believed that in rare instances surgical operation on the lung might be advisable if a localized lesion was found even though the disease is usually systemic, for they considered that surgical removal might delay a more serious outcome. It must not be forgotten that the nature of the disease is to become disseminated and rarely is there enough localization to permit surgical treatment. Histoplasmosis may be present for years without serious lesions developing and yet finally, when a latent focus becomes activated, the disease may prove fatal.

In the last fifteen years, among asymptomatic persons found in epidemiologic surveys, there has been increasing interest in the occurrence of pulmonary calcification in the presence of negative tuberculin tests. Pulmonary calcification always has been considered to be indicative of a healed lesion of tuberculosis, and an accompanying positive result of the tuberculin test would be expected. But the same roentgenologic picture, accompanied by a negative tuberculin test, was appearing increasingly in the states bordering the Mississippi River basin and the western slopes of the Appalachian Mountains. It was in these areas that a majority of the reported fatal cases of histoplasmosis had occurred. The antigen for making skin tests for histoplasmosis became available and, in a high percentage of these puzzling cases, the reaction was positive. Some doubt has been expressed concerning the accuracy of the response as cross reactions are known to be possible. But with improvement of the antigen and standardization of the laboratory procedure cross reactions are becoming less possible; moreover, Histoplasma capsulatum has been recovered in some of these asymptomatic cases.

The significance of the asymptomatic pulmonary form of histoplasmosis is that in some points it resembles pulmonary tuberculosis so closely as to be confused with it. In both conditions the antecedent lesions are soft and infiltrative and, in both, pulmonary calcification is a feature. The presumptive diagnosis rests on the patient's sensitivity to tuberculin or histoplasmin and, possibly, on recovery of the causative organism. Healing by calcification can occur in the presence of either disease. For instance, in a case reported by Kunstadter, Whitcomb and Milzer,[9] and mentioned earlier in this paper, events began with a nonproductive cough and fever. The thoracic roentgenogram was negative coincident with a positive histoplasmin test. Progress thereafter was through a febrile course accompanied by pulmonary infiltration, and during these developments Histoplasma capsulatum was cultured from the blood and from lesions induced in animals inoculated with bronchial secretions. Finally, resolution and calcification occurred. The entire course just described occupied five months.

A careful study of the relationship between pulmonary calcification and sensitivity to histoplasmin has been made by Furcolow[5]; his subjects were Kansas City school children. For two years he followed the progress of several hundred children whose roentgenograms gave evidence of pulmonary infiltration; results of their tuberculin tests were negative, and of their histoplasmin tests, positive. From the lungs of some the infiltrate disappeared and in those of others it became fibrotic, but in most of the cases calcification was the manner of healing. Furcolow reported individually seventeen such cases. In the precalcific roentgenograms there was evidence of disseminated or localized pneumonic infiltration or nodular foci. Cultures of peripheral blood, of pharyngeal secretions, of bronchial secretions and of material obtained on gastric lavage were made. One gastric culture was positive for Histoplasma capsulatum and one culture from the tonsil was positive. Calcification occurred in all lesions and hilar nodes as evidenced by thoracic roentgenograms.

In August, 1950, Furcolow[6] reported sixteen cases, in all of which the patients were acutely ill with the disease. Dominant symptoms and findings were referable to the lungs. In each case Histoplasma capsulatum was cultured from sputum, from material obtained by gastric lavage, from sternal marrow, from surgically removed tissue or from peripheral blood. Of these patients, five recovered from the acute phase, and calcification was the terminal finding at the site of the lesion. In one case there was no residual sign of the disease. At the time of the report, all of the patients were well.

Summary

As diagnostic methods improve, the systemic disease, histoplasmosis, is becoming increasingly important, for it is of more frequent occurrence that has been realized. Since Darling carefully and accurately described the findings at necropsy and the causative organism of the disease as early as 1906, it has become known not only as a fatal disease but as one having also a subclinical form and leaving residual signs such as pulmonary calcification. This makes necessary consideration of histoplasmosis in the differential diagnosis of any lesion of the lung, of any ulceration of the skin or a mucous membrane, of any granulomatous lesion or of any lymphadenopathy. Methods of culture of the etiologic agent, Histoplasma capsulatum, are now well known. The fungus has been grown from material obtained at biopsy or at surgical operation, from sternal marrow, from material obtained by bronchial or gastric lavage, from peripheral blood and from secretions taken directly from ulcerated surfaces.

Since it is a disseminated disease, symptoms may be referable to one or all systems of the body. Pulmonary and oropharyngeal manifestations are of frequent occurrence, as are gastrointestinal symptoms; with any of these, weakness, loss of weight and fever are common findings. At necropsy the organism has been found in every organ but particularly in the lungs, liver, spleen, lymph nodes, suprarenal glands, bone marrow, intestinal tract and oropharynx.

No specific medication has been effective. Isolated patients have been treated with penicillin during a febrile course and have survived, but if antibiotics have been used widely, the fact has not been reported. If the disease is limited apparently to one region, such as a lobe of a lung, surgical removal has been effected with subsequent return of health. But it must be remembered that the disease tends to become disseminated and that it may reappear in the same or a distant organ.

The asymptomatic form of the disease is important, not only for itself but because of the necessity of distinguishing it from pulmonary tuberculosis, as healing by calcification may take place in both. A negative tuberculin test in the presence of a positive histoplasmin skin test has been a factor in deciding for the tentative diagnosis of histoplasmosis and, with the intensification of diagnostic efforts, the causative agent,

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TRAUMATIC AMPUTATIONS THROUGH THE FOOT

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IN an agricultural and industrial community the general surgeon must devote a considerable part of his time to the treatment of trauma. Every effort is exerted to save life, to preserve function and to shorten the period of disability. These objects have always been important to both patient and surgeon, and now, with the increasing legal responsibilities of the employer, the haste with which the injured seeks settlement in court, and the liberal awards granted by some judicial bodies, a third party—the employer, or an insurance company, or another party to an accident—has become greatly interested in attaining these objectives.

Injuries on the highways are certainly increasing with great rapidity, and farm accidents seem far too frequent in agricultural sections. It is my impression that safety precautions instituted by railroads and by industry have effected a diminution in the number of injuries sustained by railroad and industrial workers.

The hand is frequently the site of injury in farm and factory accidents. The machines most commonly responsible for these injuries are cornpickers, saws, punch presses, shredders and belts on machines and motors, to mention a few. In our experience injuries to the foot are far less common and are caused by falling objects, axes, by the feet of farm animals, and by firearms. In the two cases to be presented the foot was partially amputated by the wheels of a train.

When a severely injured individual is seen in the emergency room, the extent of his injuries should be rapidly determined and his general condition evaluated. To me it has seemed wisest to defer thorough exploration of the large wound until anesthesia has been obtained. If shock is a complicating factor, whole blood transfusion and intravenous fluids are indicated and should be readily available. In many instances it is advisable to evacuate the stomach before the administration of general anesthesia.

In the operating room I like to have a large needle in a vein. Intravenous fluids may be given slowly and if blood has not already been started, it can be easily given, should the necessity arise. The anesthetic which we prefer is intravenous sodium pentothal, supplemented with oxygen by mask, and with nitrous oxide if necessary. During the war it was demonstrated to my satisfaction that these agents constitute the best anesthetic for emergency treatment of wounds of the extremities.

Wounds of the foot may contain ground-in dirt, cloth, leather and grease. The adjacent skin may be crushed. It is our practice to shave the skin, to clean the wound and adjacent skin with soap and water, removing all foreign material during the process. The wound is then irrigated with copious quantities of sterile water. Finally, the skin is dried and painted with tincture of iodine, and sterile drapes are applied.

We now turn to the most important step in the prevention of infection, especially gas gangrene, and that is debridement of the wound. All crushed and devitalized muscle must be excised, dangling ligaments, fragments of tendons and loose fragments of bone removed, bleeding points clamped and ligated, and nerves cleanly cut off so their ends will retract into healthy tissue. It is desirable to preserve bone length but at the same time to avoid leaving those parts which later will become an impediment to good function.

It is difficult to determine the level of skin viability. We have reasoned that it is better to be conservative in removal of skin and to use the available skin to loosely close the wound. At a later date it may be necessary to trim away skin which becomes necrotic and to devise other methods for final wound closure.

The great toe, the most important of the toes, is useful in maintaining a smooth gait and is the only single toe to be left on a foot. All possible length of the great toe should be preserved if it is involved in an injury. A remaining single minor toe serves no useful purpose and because of progressive deformity, it may become the source of annoyance.

A foot stump must have good skin coverage, and muscle balance must be maintained. There is some controversy about the advisability of using skin grafts to cover wounds of the foot. In some instances skin grafting has permitted a longer stump and has accelerated wound healing. The graft assumes some of the characteristics of the normal skin of the recipient area and ulceration becomes a smaller problem as time goes on.

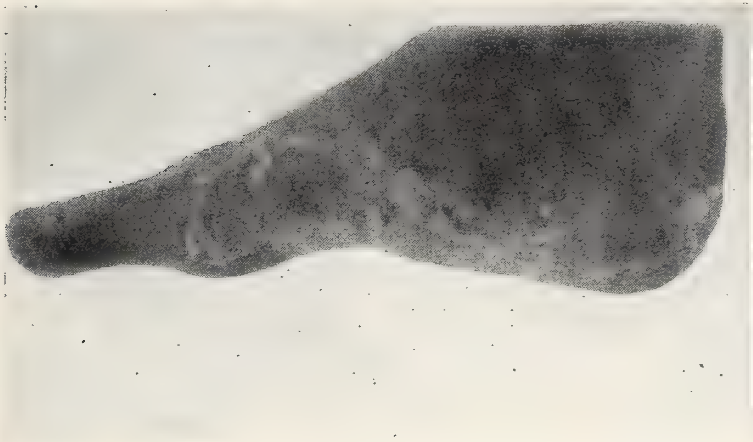

Fig. 1. Foot of boy, aged seven years, following amputation of four small toes, and skin grafting. Good functional result.

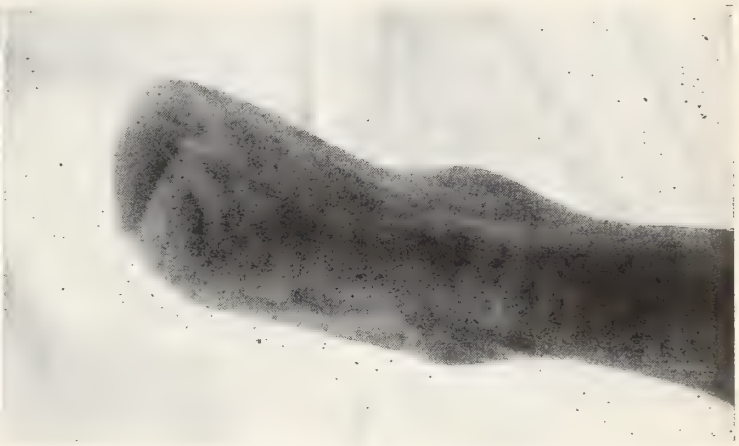

Fig. 2. Foot of a brakeman following amputation of the toes by the wheel of a freight car.

The following cases, both railroad accidents, illustrate some of the points under discussion. In each instance the final result has been gratifying.

Case Reports

Case 1.—On the afternoon of July 28, 1950, a little boy, seven years of age, was running beside a moving freight train. He "stubbed his toe," fell, and his right foot was crushed by the wheel of a car. Unknown persons brought the little patient to the hospital at once.

Examination in the emergency room disclosed a slender but well-developed boy of seven years. He was a trifle pale. The pulse was rapid. The heart and lungs were normal to percussion and auscultation. There was no evidence of injury other than to the right foot, the lateral part of which was crushed, and the four minor toes were dangling. Bleeding was moderate.

In the operating room intravenous fluids and whole blood were administered intravenously. The patient was anesthetized with vinethene and ether. The right foot and leg were cleaned with soap and water and the wound irrigated with large quantities of sterile water. The skin was painted with tincture of iodine. It was necessary to remove the four minor toes and their metatarsal bones, all of which were fractured and fragmented. The third cuneiform and the cuboid bones were also crushed and bone fragments were removed. Devitalized muscle was trimmed away. Bleeding was carefully controlled by ligatures of fine catgut. Flaps of skin of questionable viability were used to cover the wound. Dressings were applied. A prophylactic dose of gas gangrene-tetanus antitoxin was given and penicillin was given intramuscularly.

On August 5, August 11 and again on August 16 the dressings were changed under rectal pentothal anesthesia. The skin flaps did not survive, so non-viable skin was trimmed away at the line of demarcation. The great toe was in good condition and completely covered with skin. A healthy appearing granulating surface, extending from the heel to the base of the great toe, was approximately 6 inches in length and 3 inches in width.

Wet dressings of normal saline were applied for a few days. On August 26, under rectal pentothal, vinethene and ether anesthesia, a split skin graft 12/1000 of an inch in thickness was taken from the abdomen with the dermatome. This graft was applied to the granulating surface on the right foot and secured with sutures of fine cotton. Pressure dressings and a plaster cast were applied.

The cast and dressings were removed on September 7. The graft was found to have taken very satisfactorily. The edges of the wound soon healed. At first the patient was reluctant to put his foot to the floor but he rapidly resumed his normal gait, wore Western shoes and had no limp.

Case 2.—A brakeman, forty-one years of age, was brought to the Naeve Hospital at 12:45 a.m. on February 11, 1951. The ground was covered with snow and ice, and the patient stated that while looking for a hot box he slipped and the wheel of the train crushed his left foot. He hobbled to a nearby store where assistance was obtained and arrangements made to transport him to the hospital.

The patient was pale but in good general condition. His complaints were restricted to the left foot which was encased in bloody cloths. Examination revealed that the toes of the foot were dangling by their skin attachments. The phalanges and distal ends of all metatarsal bones were fractured and exposed. After a hypodermic injection of morphine sulphate and atropine sulphate the patient was taken to the operating room.

In the operating room intravenous fluids were started, and the patient was anesthetized with pentothal sodium and oxygen. The wound and adjacent skin were thoroughly cleaned with soap and water followed by irrigation with copious quantities of sterile water. The dangling toes were removed, the wound was debrided of devitalized muscle and tendons, and the ends of the metatarsal bones were rongeured with preservation of all possible length. There was a long flap of skin from the planter surface of the foot which was brought up and sutured loosely to the skin on the dorsum of the foot. A small drain was brought out through one corner of the wound, a pressure dressing was applied, and the patient returned to his room in good condition.

A prophylactic dose of gas-gangrene-tetanus antitoxin was given and penicillin therapy started. There was never any evidence of infection, but it soon became apparent that all of the skin flap would not survive. When a line of demarcation developed, the gangrenous tissue was excised and wet dressings applied. A healthy granulating surface soon developed.

On March 10, 1951, under pentothal sodium and cyclopropane anesthesia a split skin graft was taken from the left thigh with the dermatome. The graft was placed on the granulating surface of the left foot and secured with sutures of fine cotton. A pressure dressing was applied.

The dressings were changed for the first time on March 20. The graft had taken satisfactorily and the wound edges healed in fairly rapidly. The patient was dismissed from the hospital on March 28 and was seen as an out-patient thereafter. A prosthesis, consisting of a metal inner-sole for the full length of the shoe and with a pad at the distal end, was secured. The patient walks with a slight limp.

Bibliography

McKeever, F. M.: A discussion of controversial points in amputation surgery. Surg. Gynec. Obst., 82:495-511 (May) 1946.

McKeever, F. M.: Amputations. In: Cole, W. H.: Operative Technic, pp. 108-205. New York: Appleton.

Neel, H. B.: Anesthetic agents in the treatment of battle casualties. U. S. Nav. M. Bull., 45:442-448, 1945.

Slocum, D. B.: Amputations. In: Campbell's Operative Orthopedics, Vol. 12, pp. 787-836. St. Louis: C. V. Mosby Co., 1949.

HISTOPLASMOSIS

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Histoplasma capsulatum, has been recovered from asymptomatic individuals.

The fungus has been thought to be free in nature. Possibly it causes disease by effecting contact with mucous surfaces other than those of a lung, or by material containing the fungus being inhaled. The finding of gastrointestinal lesions has led to consideration of the mouth as a portal of entry. The disease has been found in most countries. Particular interest in diagnosis is evident in the United States, and here the diagnosis most often has been made in the states of the Mississippi River basin and of the western slopes of the Appalachian Mountains.

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References

1. Christie, Amos: Histoplasmosis and pulmonary calcification. Ann. New York Acad. Sc., 50:1283-1298 (Sept.) 1950.
2. Darling, S. T.: A protozoön general infection producing pseudotubercles in the lungs and focal necroses in the liver, spleen and lymph nodes. J.A.M.A., 46:1283-1285 (Apr.) 1906.
3. Darling, S. T.: Histoplasmosis: a fatal infectious disease resembling kala-azar found among natives of tropical America. Arch. Int. Med., 2:107-123 (Sept.) 1908.
4. DeMonbreun, W. A.: The cultivation and cultural characteristics of Darling's Histoplasma capsulatum. Am. J. Trop. Med., 14:93-125 (Mar.) 1934.
5. Furcolow, M. L.: Development of calcification in pulmonary lesions associated with sensitivity to histoplasmin. Pub. Health Rep., 64:1363-1393 (Nov.) 1949.
6. Furcolow, M. L.: Further observations on histoplasmosis; mycology and bacteriology. Pub. Health Rep., 65:965-994 (Aug.) 1950.
7. Hodgson, C. H.; Weed, L. A., and Clagett, O. T.: Pulmonary histoplasmosis: review of published cases and report of unusual case. J. Thoracic Surg., 20:97-104 (July) 1950.
8. Iams, A. M.: Histoplasmin skin test. Ann. New York Acad. Sc., 50:1380-1387 (Sept.) 1950.
9. Kunstadter, R. H.; Whitcomb, F. C., and Milzer, Albert: Primary histoplasmosis with recovery of Histoplasma capsulatum from the blood and bronchial secretions. J. Lab. & Clin. Med., 34:1290-1297 (Sept.) 1949.
10. Parsons, R. J., and Zarafonetis, C. J. D.: Histoplasmosis in man; report of seven cases and a review of seventy-one cases. Arch. Int. Med., 75:1-23 (Jan.) 1945.
11. Riley, W. A., and Watson, C. J.: Histoplasmosis of Darling with report of a case originating in Minnesota. Am. J. Trop. Med., 6:271-282 (July) 1926.
12. Smith, C. E.; Saito, M. T.; Beard, R. R.; Rosenberger, H. G., and Whiting, E. G.: Histoplasmin sensitivity and coccidioidal infection. I. Occurrence of cross-reactions. Am. J. Pub. Health, 39:722-736 (June) 1949.
13. Weed, L. A., and Parkhill, E. M.: The diagnosis of histoplasmosis in ulcerative disease of the mouth and pharynx. Am. J. Clin. Path., 18:130-140 (Feb.) 1948.

THE HYPERSPLENIC STATE

Report of Two Cases Treated by Splenectomy

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HYPERSPLENISM, through the years, has been the subject of much controversy. Morawitz and Eppinger, in 1919, suggested the use of the term to designate a hyperactivity of the spleen with resultant blood cell depletion.[3] That the spleen may become functionally overactive has been proven by Wiseman and Doan,[18] who described primary splenic neutropenia, reporting five cases, some of which, in addition to the neutropenia, showed a hemolytic anemia and a thrombopenia. They stated that anatomically the spleen consists of three structures: (1) the reticulo-endothelial system, (2) the lymphatic component, and (3) the vascular spaces. They were of the opinion that the diseased state is due to hypersplenism in which the reticulo-endothelial cells of the spleen destroy leukocytes at an accelerated speed. It is generally agreed that the spleen has three major functions[2]: (1) the destruction of red cells, (2) the storage of blood, and (3) the production of lymphocytes from the lymphoid elements of the organ.

How the condition seen in hypersplenism causes the cytopenias has been the subject of debate. The European workers[4,9] have theorized that there is a hormonal relationship between the spleen and bone marrow. They feel that the reticulo-endothelial cells of the spleen produce a hormone which suppresses maturation of blood cells in the marrow. This theory is also supported by Singer et al.[13] However, most American hematologists, on the other hand, favor the phagocytic hypothesis, in which the cell depletion is thought to be due to increased phagocytic activities of the enlarged spleen. In support of this, Wiseman and Doan have shown, through direct supravital studies of the splenic parenchyma, that increased phagocytosis exists. This is further upheld by the report of Hirschboeck[8] who studied a case of Felty's syndrome in which he obtained blood from the splenic vein, prior to splenectomy, which showed 2,600 white cells, and from the splenic artery which showed 11,700 white cells.

The clinical syndromes that have been described under the heading of hypersplenism by Kracke[10] include (1) chronic splenic neutropenia, (2) acute splenic neutropenia, (3) acute and chronic splenic panhematopenia of both congenital and acquired types, (4) familial hemolytic icterus, and (5) idiopathic thrombopenic purpura. Kracke also feels that the depleted cell values of so-called aplastic or hypoplastic anemia may be intensified by increased or normal activity of the spleen and that certain other diseases, such as Hodgkin's, Felty's, et cetera, which involve the spleen, may also be accompanied by an increased splenic cellular destruction. The diagnostic criteria for hypersplenism as suggested by Kracke include (1) a spleen that is clinically enlarged, the single exception being found in some cases of essential thrombopenic purpura; (2) depleted cell values in the blood including neutropenia, thrombopenia, or anemia, or various combinations of these; (3) the demonstration of the fact that bone marrow production is not impaired; and (4) the demonstration of splenic overactivity by the use of the epinephrine test. Dameshek and Estren, on the other hand, feel that the epinephrine test does not show conclusive results, and state that since hypersplenism is a functional and not an anatomic diagnosis, the final diagnostic test is splenectomy.

The triad of cytopenia, rheumatoid arthritis, and splenomegaly, the Still-Chauffard-Felty syndrome is characteristic of the hypersplenic state. This syndrome was first reported as a distinct clinical entity by Felty[5] in 1924, and subsequently it has been shown that removal of the enlarged spleen produces beneficial hematologic results.

In the hemolytic syndrome we are indebted to Banti,[1] who produced hemolytic anemia experimentally and concluded that the spleen was the central feature of that disease, stating it was a "hemolytic splenomegaly" and suggested splenectomy as a therapeutic procedure. This was first performed by Micheli in 1911. It was later that splenectomy was done therapeutically for idiopathic thrombopenic purpura.

In the field of hemolytic diseases, there are diversified opinions regarding classification. This difficulty in grouping the hemolytic anemias in the adult is emphasized by Fowler.[6] Watson[16] has grouped those cases showing microcytosis as being familial, while those with macrocytosis are of the secondary or acquired type. Singer et al state that a change in the red cell fragility to hypotonic saline solution following splenectomy may give additional aid in differentiating the congenital from the acquired type, i.e., in the acquired group the red cells become less fragile after removal of the spleen. In differentiation, Fowler stresses the importance of the following features which favor the acquired type; onset usually later, more rapid course, less marked or absent red cell fragility, and a smaller percentage of reticulocytes. He reported 13 cases of which he termed idiopathic acquired hemolytic icterus, two of which had splenectomy, both with good response. Symptomatic hemolytic anemia, as reported by Singer and Dameshek,[12] often produces spherocytosis and increased red cell fragility and may present a "pseudomacrocytic" blood picture. They state that splenectomy may be valueless unless the underlying process, such as a dermoid cyst in one of their cases, can be removed.

Stickney and Heck[15] have reported twenty-two cases which they termed primary non-familial hemolytic anemia. Their cases were grouped as those showing microspherocytosis or increased red cell fragility and those showing neither. They felt that the better results, as regards splenectomy, were obtained in the group showing microspherocytosis. They further stated that agglutinins and hemolysins did not appear to play a significant role as far as the production of the hemolytic syndrome in their cases.

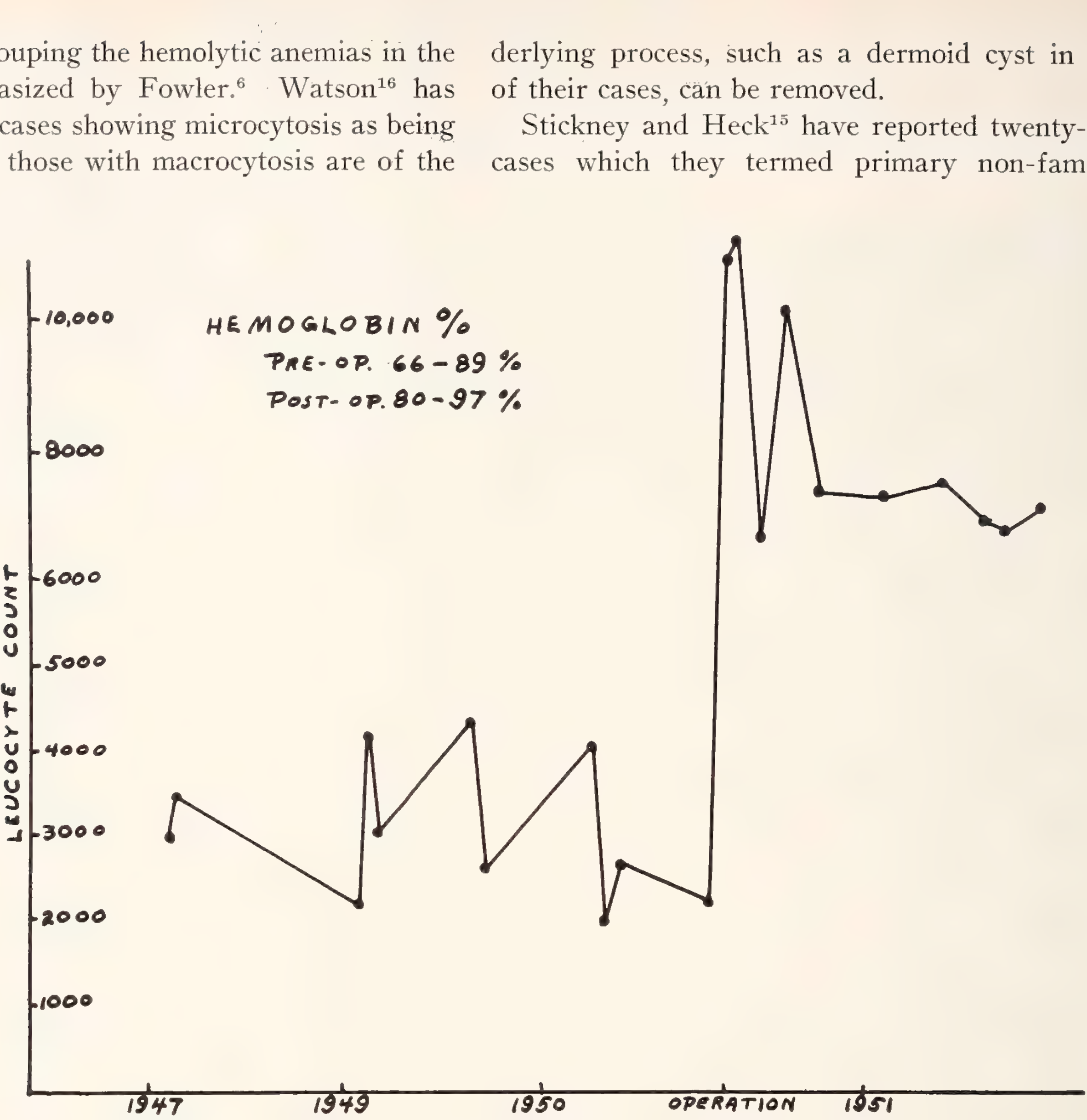

Fig. 1

Report of Cases

Case 1.—A sixty-three-year-old woman gave a history of rheumatoid arthritis of eleven years' duration. She was first seen in 1947 and at that time had white cell counts of 3,200 and 3,500 with 33 per cent polymorphonuclear cells and a hemoglobin of 77 per cent. A splenomegaly was noted at that time. She was seen again in 1949 and studies done then showed leukocytes 2,300 and 4,200 with polymorphonuclear cells from 31 to 39 per cent; platelets, icterus index, red cell fragility, and liver function tests were all normal. Splenectomy was advised but was withheld until the patient's general condition could be improved. She was placed on hematinics and given pentnucleotide to be continued at home. However, a short time later, she developed fever, chills, and a large area of cellulitis in the buttock area where she had received the injections. She was hospitalized and blood smears showed a leukemoid reaction, the bone marrow being normal. She was treated with the usual antibiotics and blood transfusions, and again splenectomy was advised.

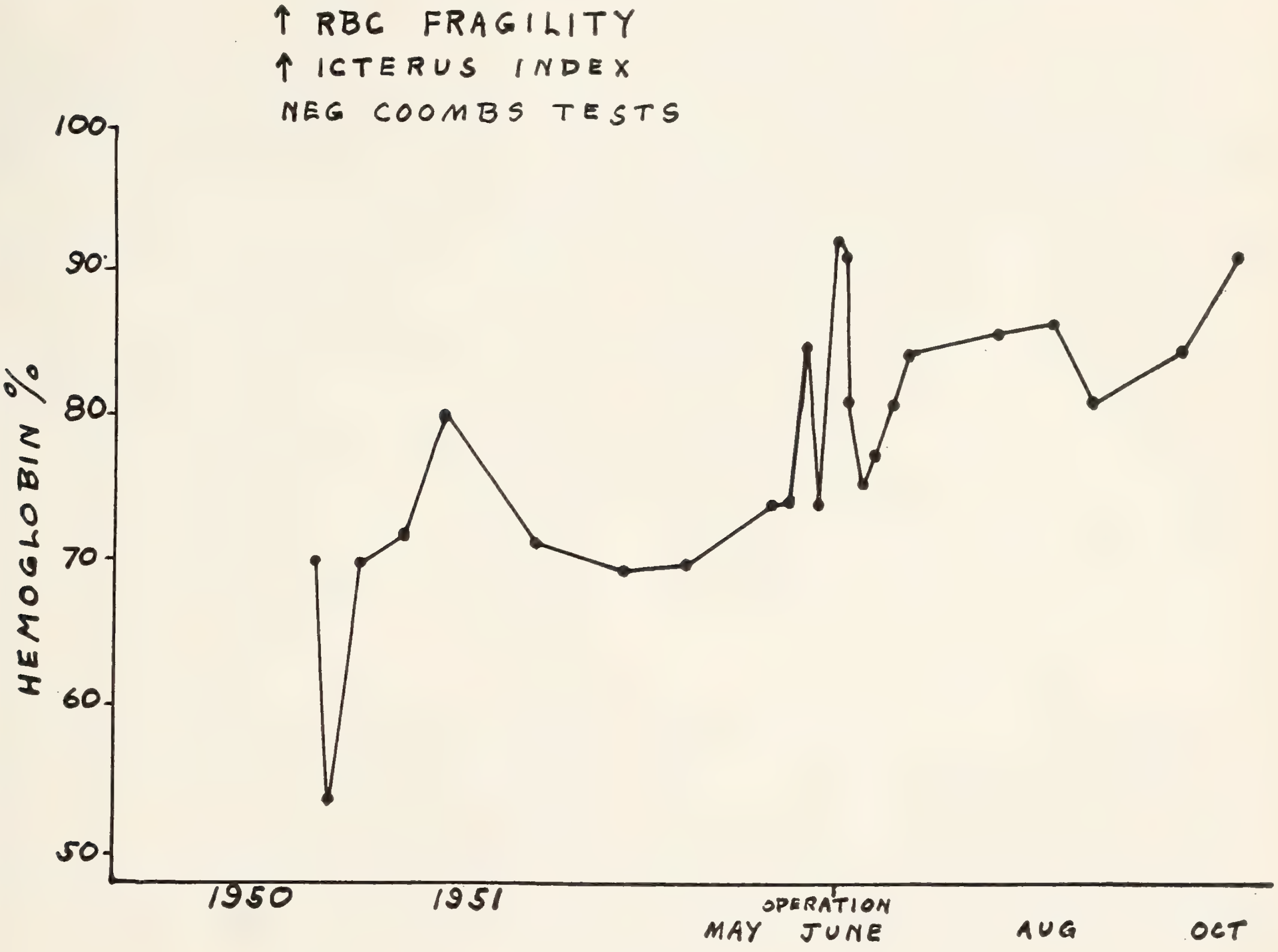

Fig. 2

In March, 1950, she was admitted again for transfusions because of her susceptibility to infections, the white count being 4,200 on this admission. Later in March, she developed an abscess in the right thigh which was drained, the leukocyte counts then being 2,050 and 2,700. In June, 1950, she was admitted for splenectomy. The bone marrow prior to operation was slightly hyperplastic. Preoperatively, the white count was 2,300 with 45 per cent polymorphonuclear cells and hemoglobin 89 per cent. The day after operation the white count was 11,150 with 91 per cent polymorphonuclear cells and the hemoglobin 97 per cent. Figure 1 shows the course of the leukocytes before and after operation. At the time of operation, a 660-gram spleen was removed along with a small accessory spleen in the hilar area. Histologically the spleen showed no phagocytosis of leukocytes. Since the operation, there has been only slight, if any, improvement in the arthritis.

Case 2.—A twenty-five-year-old white woman who was seen by her attending physician in July, 1950. She complained of nausea, weakness, flank pain and slight fever. On examination, an enlarged spleen was found and she was hospitalized. In her family history there was no evidence of anemia, jaundice, or splenomegaly. She was primigravida and her past medical history was non-contributory. Complete physical examination was negative except for the splenomegaly. Blood studies showed a hemoglobin of 70 per cent, white count 6,600, platelets 100,000, serum bilirubin slightly elevated with an indirect reaction of 2.4 mg., and red cell fragility with hemolysis beginning at 0.72 per cent and complete at 0.40 per cent. Stool urobilinogen was normal. Reticulocyte count was 9.8 per cent, and no free hydrochloric acid was found after gastric stimulation. Liver function studies were all normal. Bone marrow aspiration was reported as hyperplastic but non-diagnostic. It was felt she had possibly pernicious anemia and was given concentrated liver extract, folic acid, vitamin B_{12} and iron during the course of several months without any particular change in the blood state. Figure 2 shows the hemoglobin percentages during the course of her illness. In May, 1951, she was readmitted for further study. Again the only physical finding was the splenomegaly. At this time the hemoglobin was 74 per cent with slightly over 3,000,000 red cells, white count 9,900, reticulocyte count 3.7 per cent and platelet count over 200,000. On two occasions, there was a markedly increased red cell fragility with beginning hemolysis over 0.70 per cent. Serum bilirubin was slightly elevated and studies of red cell diameter were normal. The Coomb's anti-globulin test was negative on two occasions. Bone marrow was slightly hyperplastic. Liver function studies were again normal. No spherocytosis was demonstrated. Irregular agglutinins were not studied. The epinephrine test averaged 3,500,000 red cells, 8,900 white cells and 70 per cent hemoglobin prior to injection, with an average of 4,000,000 red cells, 20,000 white cells and 85 per cent hemoglobin following it. There was also a marked contraction of the spleen after injection. It was felt we were dealing with a primary hemolytic state as there was no evidence of any toxic or infectious agents or evidence of any primary disease with an associated hypersplenic state being present. At the time of operation a 957-gram spleen was removed which microscopically showed no evidence of erythrocyte phagocytosis. Following surgery, the hemoglobin percentages have varied from 75 to 92 per cent and the red cell count from 4,000,000 to over 4,500,000. Recheck of the red cell fragility two months postoperatively showed only a slight increase over normal values. She has been asymptomatic since surgery. The opportunity to check the relatives has not been obtained.

Discussion

The value of splenectomy in the hypersplenic state is confirmed by the present report. Hanrahan and Miller[7] in 1932 performed the first splenectomy in Felty's syndrome. In their case, the leukocyte counts ranged from 800 to 1,600 preoperatively and were 10,000 to 12,000 four months following surgery. Death occurred eighteen months after removal of the spleen, but the cause was not given. Hirschboeck has reported two cases of Felty's syndrome in which splenectomy was done, with the blood picture returning to normal in one. The second patient died six weeks postoperatively of portal vein thrombosis, but prior to operation the white count was 950 and after operation remained over 8,000. Dameshek and Estren[3] have also reported a case in a fifty-five-year-old woman who had 1,700 leukocytes which remained over 7,000 following splenectomy. Steinberg's report,[14] as well as that of others,[11,17] adds further evidence to the value of splenectomy in Felty's syndrome. Numerous authors have also reported the beneficial results of splenectomy in certain of the hemolytic states.

From the present report, the author feels that further emphasis should be placed on careful diagnostic evaluation, and the need of less conservatism in regard to the therapy of those cases which are included in the hypersplenic state. Radical, needless splenectomies certainly are to be condemned, as splenectomy is always a serious surgical procedure. However, Young et al[19] have stated that the chances of obtaining substantial benefit from splenectomy are great enough to justify recommending surgery in most cases even though it is impossible to predict which patients will respond favorably. Furthermore, according to Dameshek, if the diagnosis of hypersplenism is correct, splenectomy may be expected to cure the hematologic abnormalities in about 80 per cent of the cases.

Bone marrow depression as the cause of the selective cytopenias in the cases under discussion was not evident, as, in both, histologically, the marrow was slightly hyperplastic. This correlates with the findings reported by Steinberg.

No definite conclusion can be stated from these cases as evidence favoring only one or the other of the hormonal or phagocytic theories.

Summary

A review of the concept of hypersplenism has been presented with the emphasis on the review of pathologic physiology, diagnostic criteria, and the value of splenectomy.

Two cases of hypersplenism in which splenectomy has produced beneficial hematologic results have been reported.

References

1. Banti, G.: Ueber Morbus Banti. Folia haematol., 10:33, 1910.
2. Best, C. H., and Taylor, N. B.: The Physiological Basis of Medical Practice. P. 53. Baltimore: Williams and Wilkins Co., 1945.
3. Dameshek, W., and Estren, S.: Hypersplenism. M. Clin. North America, 1271 (Sept.) 1950.
4. Englebreth-Holm, J.: A study of splenomegaly and splenogenic controlling of the cell emission from the bone marrow. Am. J. M. Sc., 195:32, 1938.
5. Felty, A. R.: Chronic arthritis in the adult, associated with splenomegaly and leukopenia. Bull. Johns Hopkins Hosp., 35:16 (Jan.) 1924.
6. Fowler, W. M.: Acquired hemolytic icterus. Am. Int. Med., 14:1838, 1941.
7. Hanrahan, E. M., and Miller, S. R.: Effect of splenectomy in Felty's syndrome. J.A.M.A., 99: 1247, 1932.
8. Hirschboeck, J. S.: Hematologic effects of splenectomy in Still-Chauffard-Felty syndrome. Blood, 1: 247 (May) 1946.
9. Isaac, S.: über Anaemia Splenica. Berlin klin. Wchnschr., 42:1978, 1912.
10. Kracke, R. R., and Riser, W. H., Jr.: The problem of hypersplenism. J.A.M.A., 141:1132 (Dec. 17). 1949.

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FLUORIDATION OF WATER AND ITS RELATION TO REDUCTION OF DENTAL CARIES

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FLUORIDATION of public water supplies is now widely accepted as a method for reducing the prevalence of dental caries. Of all the preventive methods in use, including toothbrushing, restriction in the consumption of concentrated sugar, and topical application of sodium fluoride, fluoridation offers the greatest hope for preventing caries because of its easy application for large numbers of people and its relatively low cost.

A long series of studies has shown that the controlled fluoridation of public water supplies as a means of reducing tooth decay is economical, safe, and effective. These studies, begun approximately thirty-five years ago, were initiated in an attempt to find the cause of dental fluorosis (mottling of the tooth enamel) in many areas of the United States.

Dr. Frederick McKay's reports on several western communities, including Colorado Springs, Colorado; Oakley, Idaho; Bauxite, Arkansas, and Britton, South Dakota, tell the story of finding the cause of mottled enamel, which was the excessive intake of fluoride in drinking water.[8] In 1931, the chief chemist of the American Aluminum Company, Mr. H. V. Churchill, in an analysis of water from Bauxite, first detected fluoride as a natural element of water. On Dr. McKay's suggestion, several communities where excessive fluoride was causing mottling of tooth enamel changed their water supply to fluoride-free water and thus eliminated dental fluorosis in the next generation of children.

In the United States today, dental fluorosis is most prevalent in Arizona, Colorado, South Dakota, and Texas. Endemic areas also are found in Arkansas, California, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Minnesota, Mississippi, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Utah, and Virginia.

Practically all the community water supplies of Minnesota contain some natural fluoride, mostly less than .5 p.p.m. Approximately twenty-four communities have from .5 to .9 p.p.m. of fluoride in the water. Two communities report the ideal amount, 1 to 1.5 p.p.m. Four communities in Redwood and Meeker Counties have reported water analysis showing 2 or more p.p.m. of fluoride. In the early studies of mottled enamel, Graceville, Minnesota, showed evidence of excessive amounts of fluoride in the water supply. That community has changed the source of its water and the fluorosis picture has also changed.

Epidemiology of Fluoride and Dental Caries

It has been observed that wherever mottled enamel or fluorosis existed, there was a great reduction in the prevalence of dental caries (tooth decay). Studies were conducted by Dr. Trendley Dean[4] and his co-workers as to the relation of the amount of fluoride in the water and the degree of fluorosis as compared with the rate of dental caries. In the twenty-one cities studied, it was observed that the fluoride content in the water had a direct bearing on the severity of fluorosis of the teeth. Figure 1 shows that Lubbock, Texas, with a 4.4 p.p.m. of fluoride in the water, experienced a severe fluorosis condition in 60 per cent of the children. In Colorado Springs, Colorado, the water contained 2.5 p.p.m. of fluoride, and only 18 per cent of the children showed evidence of severe fluorosis. In Monmouth, Illinois, with a fluoride content of 1.7 p.p.m., no severe fluorosis was evident. With this amount of fluoride, Dr. Dean and his co-workers detected very little even of the mild type of fluorosis—a type that the average dentist not trained in this field would not be able to diagnose as such.

In these same studies it was also observed that there was a direct relation between the incidence of dental caries and the amount of fluoride present in the water. Where the water contained less than 0.5 p.p.m. of fluoride, the DMF rate (decayed, missing and filled permanent teeth) in children twelve to fourteen years of age was 725 teeth per 100 children, or 7.25 teeth affected per child. Figure 2 shows that cities with 0.5 to 0.9 p.p.m. of fluoride reveal a DMF rate of ap-

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proximately 4 teeth per child. In cities of 1 to 1.4 p.p.m. of fluoride, the rate was even less than 3 DMF teeth per child. Where the fluoride content of water exceeded 1.5 p.p.m., the caries rate was slightly less than in those where the fluoride content was from 1 to 1.4 p.p.m.

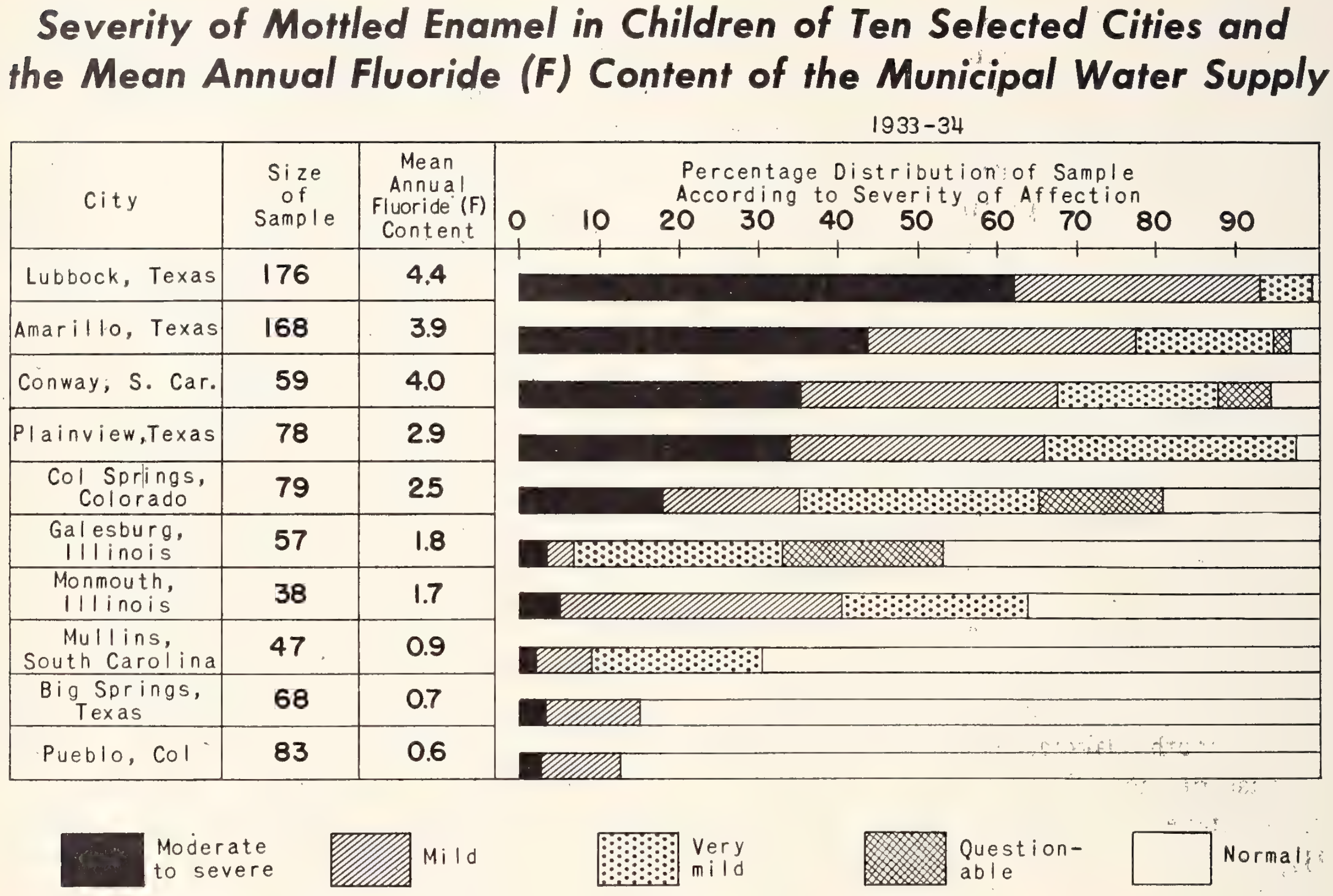


Fig. 1.

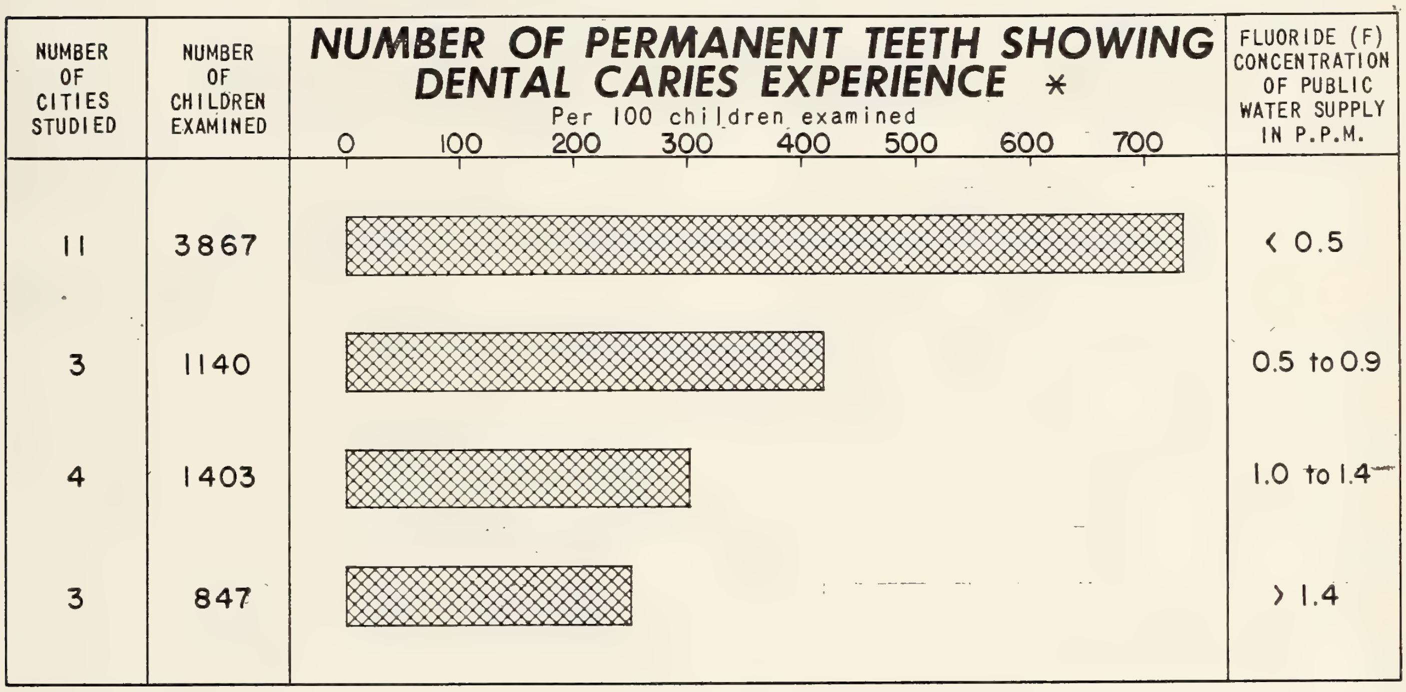
Figure 1 shows that fluorosis of the enamel is not evident at 1.7 p.p.m. or less, and in Figure 2 the lowest incidence of dental caries is shown in areas where the fluoride content of the water is 1 to 1.5 p.p.m. or more. On this basis Dr. Dean and the U. S. Public Health Service recommend that 1 to 1.5 p.p.m. of fluoride in the water ingested during the developmental period of the teeth (which is about the first ten years of the child's life) will reduce dental caries approximately 65 per cent, with no detectable fluorosis. Dr. Dean's studies further demonstrated that where fluoride is found naturally in the water one may expect:

1. About six times as many children having no dental caries experiences as in areas where little or no fluoride is found.
2. About 75 per cent decrease in loss of first permanent molar teeth.
3. Approximately 95 per cent less caries in the proximal surfaces of the four upper incisors.

Dr. Wallace Armstrong[1] of the University of Minnesota demonstrated that a sound tooth had twice as much fluoride content in the enamel as a carious tooth. He further demonstrated that a tooth affected by fluorosis had twice the amount of fluoride as a sound fluorosis-free tooth.

Minnesota's Fluoride Areas

Minnesota does not have many areas with sufficient fluoride to reduce dental decay. In a few small communities in the Meeker and Redwood County area, the water supplies reveal 1 or more p.p.m. of fluoride. In April, 1951, the Minnesota Department of Health made dental examinations of the eleven to thirteen age group in Walnut Grove and Milroy.[9] Both these communities had a fluoride content of 2 p.p.m. These dental examinations were compared with those on the same age group in Hinckley and Grand Marais where the fluoride content was insignificant at the time of the examination. Table I reveals that the children born and residing continuously in the villages of Milroy and Walnut Grove had a DMF rate of 1.8 teeth per child as compared with rates of 7.14 and 6.43 in Hinckley and Grand Marais, respectively. Children born in Redwood County and attending school in Milroy or Walnut Grove reveal a rate of 3.36 teeth per child.



* Dental caries experience is computed by totaling the number of filled teeth (past dental caries), the number of teeth with untreated dental caries, the number of teeth indicated for extraction, and the number of teeth missing (presumably because of dental caries).

Fig. 2. Amount of dental caries (permanent teeth) observed in 7,257 selected twelve-to-fourteen-year-old, white, school children in twenty-one cities of four states; classified according to the fluoride concentration of the public water supply. From Dean, H. T.; Arnold, F. A., Jr., and Elvove, E.: Pub. Health Rep., 57:1155-1179 (Aug. 7) 1942.

TABLE I. COMPARISON OF CARIES EXPERIENCE IN THREE MINNESOTA AREAS
Milroy and Walnut Grove water supplies contain 2 to 2.1 p.p.m. fluoride

	Grand Marais November, 1950	Hinckley October, 1950	*County** Milroy-Walnut Grove April, 1951	*Village*** Milroy-Walnut Grove April, 1951
Group Examined	11-13 years	11-13 years	Grades 6-8	Grades 6-8
Number in Group	113	108	195	32
Per cent of Children with DMF Teeth	98.2	97.2	75.9	65.6
Average DMF Teeth	7.14	6.43	3.36	1.80
Average Lost Permanent Teeth	0.38	0.72	0.15	0.13

*Milroy-Walnut Grove children in grades 6-8, inclusive, who have lived all their lives in or near Redwood County.

**Milroy-Walnut Grove children in grades 6-8, inclusive, who have lived all their lives in Milroy or Walnut Grove.

Controlled Fluoridation

Controlled studies were developed to determine if fluoride added to fluoride-free water in controlled amounts would result in the same reduction in dental caries as natural fluoridated water. Several studies were inaugurated in the United States and Canada on a ten-year basis. Most of these studies have now been under way for more than five years. The studies in Grand Rapids, Michigan, and in Newburgh, New York, have been watched closely. In each case annual physical and dental examinations have been made on all children in the age group 3-17 years. The results after five years' application of 1 p.p.m. of fluoride to the water supply of Grand Rapids, Michigan, is revealed in Figure 3.[5] Muskegon was the control city for this study. Both cities receive their water supply from Lake Michigan. These two cities in turn are compared with Aurora, Illinois, which has a water supply showing a content of 1.2 p.p.m. of fluoride naturally. The DMF rate of the lower age groups in Grand Rapids after five years parallels the rate in Aurora. Similar conclusive results have been published from Newburgh.[2] The older children receive some benefits, but the greatest reduction is achieved when the child from birth drinks water containing 1 to 1.5 p.p.m. of fluoride and remains in residence until the crowns of the permanent teeth are fully formed—a period of approximately ten years. Following that period the benefits are lasting regardless of where the individual resides.

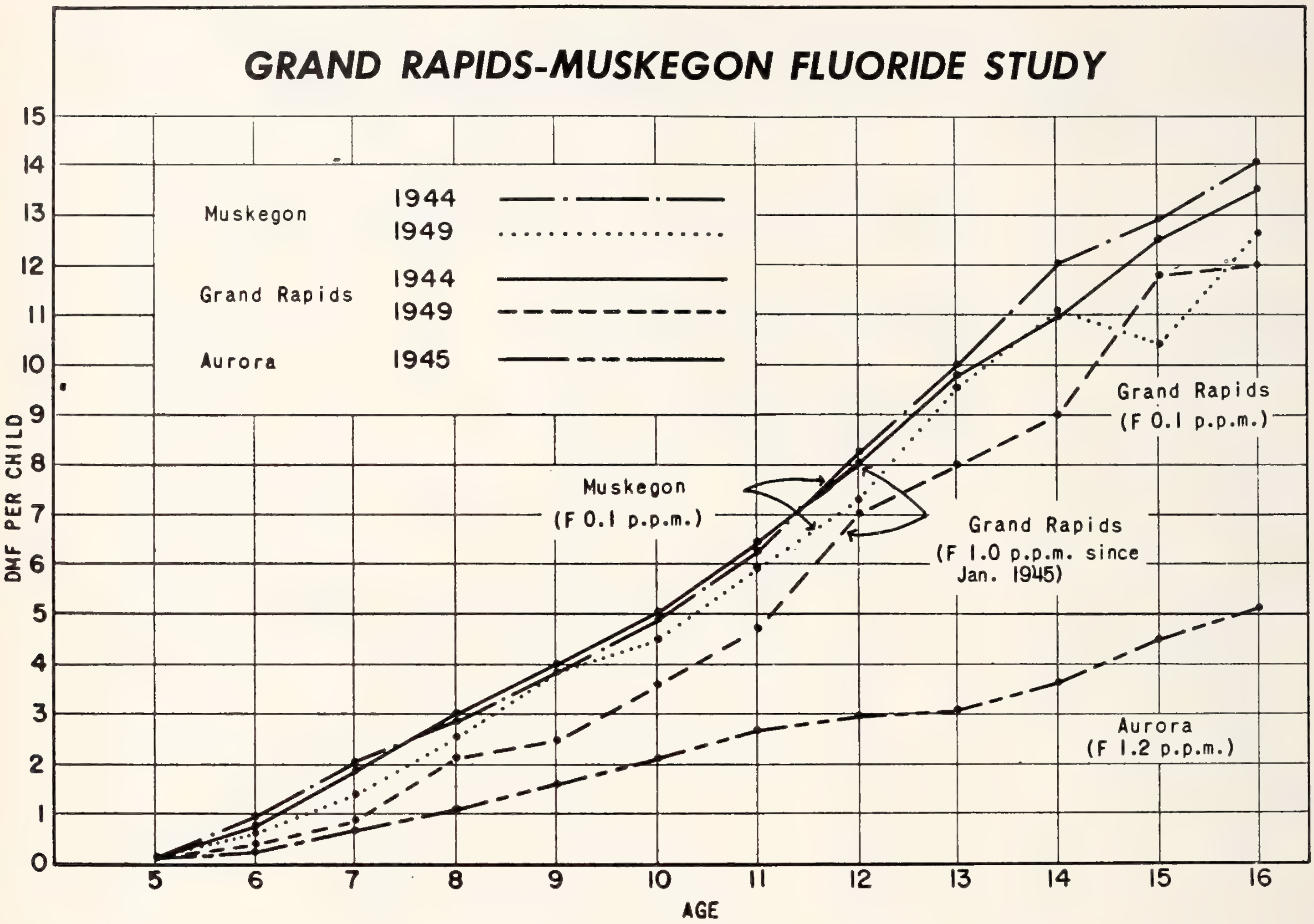


Fig. 3.

Fuoride in water is colorless, odorless, and tasteless. In Minnesota the State Health Department advocates, wherever a community wishes to proceed with a fluoridation program, that 1.2 p.p.m. of fluoride be added to the water supply. Members of the Divisions of Dental Health and Municipal Water Supply of the Minnesota Department of Health are prepared to assist any community interested in a water fluoridation program. Public health engineers in the eight health districts of the state are likewise prepared to give local communities consultation and advice on this subject.

HEALTH DISTRICT OFFICES AND PUBLIC HEALTH ENGINEERS

Health District	*Headquarters*	*Public Health Engineer*
I	Bemidji	Mr. Robert H. Pinther
II	Mankato	Mr. Elmer A. Huset
III	Rochester	Mr. F. J. Kilpatrick
IV	Duluth	Mr. H. G. Formo
V	Worthington	Mr. A. C. Larson
VI	Minneapolis	Mr. Daniel L. Baer
VII	Fergus Falls	Mr. Frederick Heisel
VIII	Little Falls	Mr. Andrew J. Starin

Types of Installations

There are three methods of feeding fluoride into the water supply—solution feed, dry volumetric, and dry gravimetric. The solution feed method is adapted to small communities. The volumetric feeder will serve the water supply of communities between 20,000 and 50,000 population. The gravimetric feeder is generally used in larger cities. Solution feeders may be installed for $500 or more, according to the capacity and auxiliary equipment needed. Dry feeders cost considerably more. Public health engineers should be consulted regarding the type best suited to each community. The manufacturers of this equipment state that they will be happy to give consultation on cost and installation. All equipment is automatically controlled and equipped with all safety devices in accordance with state laws.

Fluoride Compounds Used

Sodium fluoride is being used in many water fluoridation projects because it is readily available and convenient to use, dissolves easily, and has been the subject of extensive studies on toxicity and physiological effects.

Sodium silicofluoride (sodium fluosilicate) is one of the most economical compounds. It provides available fluoride at from one-third to one-half the cost of that obtained from sodium fluoride.

Hydrofluosilicic acid, while more costly than sodium silicofluoride, can be fed directly into water supplies without considering solubility and with the least handling.

Hydrofluoric acid is being used in one city—Madison, Wisconsin. It is dangerous to handle, corrosive, and not recommended.[7]

Fluoride is placed in a water supply in a manner similar to the addition of other elements used in water departments.

Testing Fluoride Content

A colorimetric testing device has been developed to determine the amount of fluoride in the water to within 0.20 parts of fluoride per million parts of water. The average water works operator in a small community can make the determinations with reasonable accuracy. These tests are made several times a day at the beginning of the program and are rechecked by tests made by district or state health departments. Occasional check of tap water will determine the fact that the fluoride has reached all areas of the water system.

Cost of Fluoridation Programs

For a cost of 5 to 14 cents per capita per year, the next generation of children can have better dental health.[6] The Red Lake Falls installation for a population of 1,700 cost about $700, including equipment, electrical installations, plumbing, jars for solution, testers, and cabinet. The annual maintenance is estimated at 5 cents per capita.

TABLE II. ECONOMICS OF FLUORIDATION*

MADISON—.005 p.p.m. Fluorine			
Dental Decay Experience and Expense Through Average Age 16			
Baby Teeth	Avg. DMF	units	10.28 at $ 3.00=$30.84
Perm. Teeth	Avg. DF	units	16.66 at $ 4.00=$66.64
	Avg. M	units—restored	3.21 at $25.00=$80.25
	Avg. M	teeth—extracted	1.07 at $ 5.00=$ 5.35
Total average dental expense per person $183.08			
UNION GROVE—1.2 p.p.m. Fluorine			
Baby Teeth	Avg. DMF	units	3.12 at $ 3.00=$ 9.36
Perm. Teeth	Avg. DF	units	4.30 at $ 4.00=$17.20
	Avg. M	units—restored	0.48 at $25.00=$12.00
	Avg. M	teeth—extracted	0.16 at $ 5.00=$ .80
Total average dental expense per person $39.36			
Cost of Fluoridation ...... 25 cents per year × 16 = $4.00			
Saving of $143.72 or $35.93 for $1.00 invested			

*Dane County Dental Society, Wisconsin, Flourine Committee.

The total daily cost of adding sodium fluoride to the water supply of an average town of 10,000 is about $2.25. If sodium silicofluoride can be used, the daily cost may be about 75 cents. On a per person basis, sodium fluoride costs about 11 cents per year, silicofluoride about 5½ cents. Amortized over a twenty-year period, the annual cost of equipment for feeding fluoride into the water supply is almost negligible.

At the rate of 14 cents per person per year and in a life span of 75 years, an individual would pay $10.50 for two-thirds less dental decay and two-thirds less dental bills. Table II shows a comparative study of dental cost for a sixteen-year-old individual in Madison, Wisconsin, which had fluoride-free water, and for a similar individual in Union Grove, Wisconsin, which has 1.2 p.p.m. of fluoride. The dental expenditure of the Union Grove sixteen-year-old is approximately 78 per cent less than that of his counterpart in Madison. (Fluoride is now being applied to the water in Madison.)

For an annual investment per person of the price of one candy bar or a little more, the community can bring greatly improved dental health to its younger children. The children of today are the adults of tomorrow. As the fluoridation program continues, more and more individuals will benefit until the whole population is protected.

Dr. A. L. Russell[10] reports that adults twenty to forty-four years of age show continued

TABLE III. DEATH RATES PER 100,000 POPULATION FROM SELECTED CAUSES IN WISCONSIN CITIES WITH VARYING CONCENTRATIONS OF FLUORIDE IN PUBLIC WATER SUPPLIES, 1945-1949*

City	Green Bay	Stevens Point	Sheboygan	Sheboygan .03 p.p.m. (pre-fluoridation 1940-44)
Fluoride Concentration in Water Supply	2.5 p.p.m.	0.02 p.p.m.	1.2 p.p.m.	
Leading Causes of Death				
Heart	279.7	298.5	340.9	311.0
Cancer	131.6	136.2	137.7	148.1
Cerebral hemorrhage	103.3	77.0	124.2	97.9
Nephritis	28.7	32.0	21.7	41.3
Pneumonia	19.0	33.2	23.9	28.5
Diabetes	20.9	34.3	24.4	32.5
Tuberculosis	7.8	14.2	19.4	32.5
Influenza	8.2	2.4	4.5	8.4
Appendicitis	5.2	3.6	2.3	4.4

*Source: Wisconsin State Board of Health, continuous resident data.

benefits of fluoridated water. Comparisons were made between the age groups twenty to forty-four in Colorado Springs and persons of similar age in Boulder, Colorado. The water supply of Colorado Springs contained 2.5 p.p.m. of fluoride, while Boulder water was fluoride-free. Only those adults who were born and maintained a continuous residence in their respective communities were involved. Dental examinations showed that the group in Colorado Springs had a 60 per cent lower dental decay rate than the same age group in Boulder. The Boulder natives had lost three to four times as many permanent teeth from dental caries as the natives of Colorado Springs.

Today the controlled fluoridation program as a means of reducing dental caries is approved by the:

American Dental Association
American Association of Public Health Dentists
State and Territorial Dental Directors Association
State and Territorial Health Officers Association
American Public Health Association
U. S. Public Health Service
American Water Works Association
American Medical Association
Minnesota State Dental Association
Minnesota Department of Health

The controlled fluoridation of domestic water is more beneficial than the natural occurrence of fluoride in the water, because with controlled fluoridation, the public is assured that a constant amount of fluoride, 1.2 p.p.m., is in the water at all times. Natural fluoridated water varies with the seasons. The controlled program also assures the public of reduction of dental caries without fluorosis.

There is no evidence that fluoridated water contributes to the increase of various diseases (Table III).

Observations on the 3,000,000 people using water with 1.0 to 8 p.p.m. of fluoride in the western states area from South Dakota down through Texas give assurance that fluoridated water does not create any adverse physical defects other than fluorosis on the dental enamel where fluoride is present in excessive amounts. In that area:

1,000,000 people use water containing 1.0—1.5 p.p.m. of fluoride
900,000 people use water containing 1.6—2.0 p.p.m. of fluoride
600,000 people use water containing 2.1—3.0 p.p.m. of fluoride
100,000 people use water containing 3.1—5.0 p.p.m. of fluoride
40,000 people use water containing 5.1—or higher p.p.m. of fluoride

Drs. C. P. Cox and David B. Ast state that acute morbidity, manifested by increased salivation and vomiting, may be caused by 0.25 gm. sodium fluoride.[3] This quantity in an 8-ounce glass of water represents 1,000 p.p.m. of sodium fluoride or about 450 p.p.m. of fluoride. To obtain this concentration would require more than four tons of sodium fluoride per million gallons of water treated, which is obviously not possible in a program of water fluoridation, even if gross negligence occurred.

Approximately 140 communities within the United States are operating a controlled fluoridation program at the present time. Some of the larger cities that have started or are in the process of starting such a program are Philadelphia, Pennsylvania; Baltimore, Maryland; San Francisco, California; Saint Paul, Minnesota; Madison and Milwaukee, Wisconsin, and Washington, D. C.

In Minnesota, thirteen communities are now adding fluoride to their water supply. They are Red Lake Falls, Thief River Falls, Fergus Falls, Montevideo, Fairmont, Winnebago, West Concord, Ely, Granite Falls, Hallock, Arlington, Benson, and Hutchinson. At least fourteen other communties are known to have ordered equipment and will start adding fluoride in the near future. All fluoridation plans for Minnesota communities must be approved by the Division of Municipal Water Supply, Minnesota Department of Health.

(References on Page 265)

AUTOPSIES REPORTED ON MINNESOTA DEATH RECORDS

J. W. BROWER, M.A., and E. W. STOREY, M.S.
Saint Paul, Minnesota

An awareness of a growing interest on the part of physicians in autopsies prompted a limited survey of the extent to which the postmortem examination is performed in Minnesota. While the restricted scope of the analysis makes for inconclusiveness, it is nevertheless felt that the results of the study may be indicative of present trends.

Source of Data

The question "Was there an autopsy?" first appeared on the Minnesota death certificate in the 1918 issuance of these forms. Since 1920 the autopsy question has continuously been a part of the Minnesota record of death. On the forms prescribed by the Minnesota State Board of Health for the years 1920 to 1941, the autopsy item was represented merely by the question "Was autopsy performed?" From 1941 to 1947 the medical certification portion of the death record provided space for "Major findings of operation . . . of autopsy." The item was returned in 1947 to the phrasing used from 1920 to 1941, and in the new uniform certificate of death, adopted in 1950 and presently in use, the item was further simplified to appear thusly:*

20. Autopsy?
Yes ☐ No ☐

For this study a tabulation of the responses to the autopsy question on the records of death occurring in Minnesota during the six-month period, April 1 through September 30, 1951, was made. However, since the greater portion of deaths occurs in the cities of Minneapolis, Saint Paul, and Duluth, a comparison was drawn, as shown in Table I, with the data contained in the death records of these three cities only for the comparable six-month periods in the years 1921, 1931, and 1941. It will be observed that the increase in number, as computed percentage-wise, is more pronounced between the years 1921 and 1931, being particularly noticeable in the data for the City of Duluth, but the gain between 1941 and 1951 is relatively insignificant. Saint Paul actually had a slight percentage loss over the comparable six-month period in the year 1941.

TABLE I. A THREE-CITY COMPARISON OF AUTOPSIES PERFORMED

Cities	Deaths—All Causes				Autopsies Performed				Per Cent of Cases Autopsied			
	1921	1931	1941	1951	1921	1931	1941	1951	1921	1931	1941	1951
Total for three cities	3,572	4,561	4,620	5,171	419	1,120	1,167	1,573	11.7	24.6	25.3	30.4
Minneapolis	1,980	2,538	2,576	2,819	230	574	514	785	11.6	22.6	20.0	28.2
Saint Paul	1,147	1,459	1,479	1,703	171	399	460	526	14.9	27.3	31.1	30.8
Duluth	445	564	565	649	18	147	193	252	4.0	26.1	34.2	38.8

The 1951 Analysis

A total of 13,866 deaths occurred in the state during the six-month period, April 1 through September 30, 1951, covered by this study. And 2,274 autopsies (16.4 per cent of the total) were performed on these deaths. No autopsy was reported in 8,199 deaths (59.1 per cent of the number), while the information was omitted on 3,393 records, representing 24.5 per cent of all deaths. The factors analyzed include geographic distribution, autopsies in hospitals, autopsies in medical certifications by physicians and coroners, and autopsy variations by cause of death.

Geographic Distribution

Table II shows that the largest number of autopsies was performed in Minneapolis. Of the deaths studied 20.3 per cent occurred in Minneapolis, while 35.0 per cent of all autopsies were done there. It will be noted that 28.2 per cent of all Minneapolis deaths were autopsied. The largest proportion of autopsies, for an

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*Casady, Gladys G., and Brower, Jerome W.: New forms of vital records in 1950, Minnesota Med., 32: 1193-1198 (Dec.) 1949.

Mr. Brower is Assistant State Registrar of Vital Statistics, and Mr. Storey is Statistician, Division of Vital Statistics, Minnesota State Board of Health.

TABLE II.
AUTOPSIES PERFORMED BY GEOGRAPHIC AREA, APRIL 1 TO SEPTEMBER 30, 1951

Reporting Area	Total Deaths	Was Autopsy Performed?		
		Yes	No	Not Stated
Number:	13,866	2,274	8,199	3,393
Minneapolis C.	2,819	795	1,531	493
Saint Paul C.	1,708	526	877	305
Duluth C.	649	252	312	85
Rochester C.	557	24	28	505
Fort Snelling VA Hospital	175	131	44	—
Other urban areas	3,903	374	2,615	914
Other rural areas	4,055	172	2,792	1,091
Per Cent by State Total:	100.0	100.0	100.0	100.0
Minneapolis C.	20.3	35.0	18.7	14.5
Saint Paul C.	12.3	23.1	10.7	9.0
Duluth C.	4.7	11.1	3.8	2.5
Rochester C.	4.0	1.1	0.3	14.9
Fort Snelling VA Hospital	1.3	5.8	0.5	0.0
Other urban areas	28.1	16.4	31.9	26.9
Other rural areas	29.3	7.5	34.1	32.2
Per Cent by Area:	100.0	16.4	59.1	24.5
Minneapolis C.	100.0	28.2	54.3	17.5
Saint Paul C.	100.0	30.8	51.3	17.9
Duluth C.	100.0	38.8	48.1	13.1
Rochester C.	100.0	4.3	5.0	90.7
Fort Snelling VA Hospital	100.0	74.9	25.1	0.0
Other urban areas	100.0	9.6	67.0	23.4
Other rural areas	100.0	4.2	68.9	26.9

entire city, 38.8 per cent of all deaths, was found in Duluth. Less than 10.0 per cent of the deaths occurring in urban areas outside Minneapolis, Saint Paul and Duluth were autopsied. On the basis of the affirmative answers appearing on the death certificates received from the rural areas of Minnesota, less than 5 per cent of all deaths were autopsied. The Veterans Hospital at Fort Snelling, however, performed autopsies on 74.9 per cent of its deaths.

Autopsies in Hospitals

For analysis purposes, hospital and institutional deaths were grouped into four categories: general hospitals, including maternity homes and nursing homes offering medical and nursing care; state hospitals for the mentally ill; tuberculosis sanatoria, and veterans hospitals. The study revealed that 77.4 per cent of all autopsied deaths, as shown in Table III, occurred in general hospitals, 3.4 per cent in state hospitals, 1.8 per cent in tuberculosis sanatoria, 6.3 per cent in veterans hospitals, and 11.1 per cent took place outside of these institutions.

Veterans hospitals autopsied 75.0 of their deaths; tuberculosis sanatoria, 47.1 per cent; general hospitals, 23.3 per cent; and state hospitals, 16.2 per cent. Autopsies were performed on only 4.5 per cent of all deaths occurring outside of these institutions.

TABLE III.
AUTOPSIES IN HOSPITALS

Place of Death	All Deaths	Was Autopsy Performed?		
		Yes	No	Not Stated
Number:	13,866	2,274	8,199	3,393
General hospitals	7,536	1,759	3,898	1,879
State hospitals	476	77	270	129
Tuberculosis sanatoria	87	41	42	4
Veterans hospitals	192	144	48	—
Non-hospitalized	5,575	253	3,941	1,381
Per Cent of State Total:	100.0	100.0	100.0	100.0
General hospitals	54.3	77.4	47.5	55.4
State hospitals	3.4	3.4	3.3	3.8
Tuberculosis sanatoria	0.6	1.8	0.5	0.1
Veterans hospitals	1.4	6.3	0.6	0.0
Non-hospitalized	40.3	11.1	48.1	40.7
Per Cent by Type of Hospital:	100.0	16.4	59.1	24.5
General hospitals	100.0	23.3	51.7	25.0
State hospitals	100.0	16.2	56.7	27.1
Tuberculosis sanatoria	100.0	47.1	48.3	4.6
Veterans hospitals	100.0	75.0	25.0	0.0
Non-hospitalized	100.0	4.5	70.7	24.8

Autopsy information was omitted on 25.0 per cent of general hospital deaths, 27.1 per cent of state hospital deaths, 4.6 per cent of the tuberculosis sanatoria, and 24.8 per cent of the non-hospitalized deaths. The veterans hospitals reported the information for all deaths.

Autopsies in Medical Certification by Physicians and Coroners

Physicians certified 87.6 per cent of the causes of death in the group under study. They certified 88.4 per cent of all deaths on which autopsies were performed. As shown in Table IV, 16.6 per cent of the deaths certified by physicians and 15.3 per cent of the deaths certified by coroners were autopsied.

The Causes of Death Reported in Autopsy Cases

With reference to the various causes of death, there is apparently a wide variation in the proportion of autopsies performed (Table V). For example, 55 per cent of the maternal deaths were autopsied. Deaths due to intracranial vascular lesions, general arteriosclerosis, hypertension without mention of heart disease, and suicide were autopsied in less than 10.0 per cent of the cases reported. Autopsies were done in over one-third of the deaths due to infective and parasitic diseases, diseases of the digestive system, nephritis and nephrosis, congenital malformations, and homicide. The groupings of the causes of death represent those in which there are particular public interest, including the leading causes of death for the State.

TABLE IV. AUTOPSIES IN MEDICAL CERTIFICATIONS

Certifier of Cause of Death	Number of Deaths				Per Cent of Deaths			
	Was Autopsy Performed?				Was Autopsy Performed?			
	Total Deaths	Yes	No	Not Stated	Total Deaths	Yes	No	Not Stated
Total	13,866	2,274	8,199	3,393	100.0	16.4	59.1	24.5
Physician	12,141	2,010	7,037	3,094	100.0	16.6	58.0	25.4
Coroner	1,725	264	1,162	299	100.0	15.3	67.3	17.4

TABLE V. AUTOPSY VARIATIONS BY CAUSE OF DEATH

	Number of Deaths				Per Cent Autopsied			
	Was Autopsy Performed?				Was Autopsy Performed?			
	Total	Yes	No	Not Stated	Total	Yes	No	Not Stated
Total	13,866	2,274	8,199	3,393	100.0	16.4	59.1	24.5
Infective and parasitic diseases	220	77	115	28	100.0	35.0	52.3	12.7
Malignant neoplasms (cancer)	2,365	491	1,326	548	100.0	20.8	56.1	23.1
Diabetes mellitus	269	35	159	75	100.0	13.0	59.1	27.9
Intracranial vascular lesions	1,749	136	1,118	495	100.0	7.8	63.9	28.3
Diseases of the heart	4,846	543	3,103	1,200	100.0	11.2	64.0	24.8
Hypertension without mention of heart disease	153	12	95	46	100.0	7.8	62.1	30.1
General arteriosclerosis	321	19	216	86	100.0	5.9	67.3	26.8
Pneumonia (except pneumonia of the newborn)	251	67	133	51	100.0	26.7	53.0	20.3
Diseases of the digestive system	519	198	230	91	100.0	38.2	44.3	17.5
Nephritis and nephrosis	146	24	89	33	100.0	37.9	43.8	18.3
Maternal deaths	18	10	6	2	100.0	55.6	33.3	11.1
Congenital malformations	247	103	80	64	100.0	41.7	32.4	25.9
Birth injuries, postnatal asphyxia and atelectasis	242	63	100	79	100.0	26.0	41.3	32.7
Infections of the newborn	40	6	24	10	100.0	15.0	60.0	25.0
Immaturity	265	38	121	106	100.0	14.3	45.7	40.0
Other diseases peculiar to early infancy	57	19	22	16	100.0	33.3	38.6	28.1
Accident fatalities	1,024	205	628	191	100.0	20.0	61.3	18.7
Suicide	147	8	114	25	100.0	5.4	77.6	17.0
Homicide	11	6	4	1	100.0	54.5	36.4	9.1
All other causes	976	214	516	246	100.0	21.9	52.9	25.2

Summary and Conclusions

1. A query regarding autopsy performed has appeared on Minnesota death records since 1918.

2. The findings of this study indicate that approximately 16 per cent of all Minnesota deaths are autopsied.

3. A large proportion of the autopsies is performed in the metropolitan areas of Minneapolis, Saint Paul, and Duluth.

4. Autopsies are most common in patients hospitalized in general hospitals or veterans hospitals.

5. There is wide variation in the proportion of autopsies among the various causes of death.

6. There is need for more complete response to the autopsy query on the death certificate. This study indicates that no reply was given on almost 25 per cent of the cases. Physicians are urged to supply this information in the medical portion of the death record. It is a part of the *complete* medical certification.

HISTOPLASMOSIS AND TUBERCULOSIS

Histoplasmosis must be taken into account in all routine x-ray surveys of population and differentiated from tuberculosis despite superficial similarities. Carefully controlled studies of the etiology of histoplasmosis in relation to conditions that vary geographically are very much needed.—G. ARNOLD CRONK, M.D., *New York State Journal of Medicine,* August 15, 1951.

President's Letter

THE ODDS ARE TWO TO ONE

The odds are two to one against doctors being good citizens.

If that startles you, consider the fact that only 36 per cent of the nation's physicians discharge one of the basic obligations of citizenship—exercising their right to vote.

During recent years, the medical profession has made aggressive entry into politics in order to keep politics out of the medical care picture. Physicians have developed an alert, analytical attitude toward legislative proposals and governmental agency functionings which affect the practice of medicine and, by inescapable progression, the health of the nation.

The medical profession has gone a step further than watchfulness and self-apprisement: through a gigantic and interlocking educational program, physicians have sought to inform the general public on these legislative and economic matters, which are of great personal significance by virtue of their impingement upon such individual prerogatives as the right to select and retain a family doctor.

The educational campaign has been as sharply depicted as a blackboard lesson, with emphasis on the economics of medical care, its close correlation, through the principle of free choice and personal initiative, with the entire democratic structure, and the inevitable decline in quality and availability that would result from governmental interference in the present medical care system.

The family doctors of America have become almost expert in legislative symptomatology and the diagnosis of dangerous "fringe" bills that could cause epidemics of sociological ill health.

And yet, we continue to fail in the important—the vital—duty of registering and voting at elections on all governmental unit levels. Thirty-six per cent of the nation's physicians is not a representative number; nor will it be possible for the load of good citizenship to be carried by only one out of every three physicians. Exercising the right to vote for capable and responsible officials helps to make the good doctor a good citizen.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

THE PRESIDENT'S COMMISSION ON HEALTH NEEDS

PRESIDENT TRUMAN'S appointment on December 29, 1951 of a Commission on the Health Needs of the Nation to "make a critical study of our total health requirements, both immediate and long term and (to) recommend courses of action to meet those needs" immediately raised the question in many minds as to why. Are the health needs of the people today in such a state as to warrant the expenditure of defense funds to carry on an intensive year's study of such a many faceted subject?

When we consider that President Truman's answer to the health needs of the nation has been, in part at least, the socialization of medical care through compulsory government health insurance and that his efforts along this line have not been successful, we are inclined to agree that the placing of a limit of one year on the life of the committee has significance. It certainly will eliminate the question of compulsory government health insurance from the coming presidential election campaign. Is it possible that he prefers to approach that campaign with the issue of the socialization of medical care eliminated? We, for our part, feel that this will be for the best. The socialization of medical care should not be a plank in any political party platform, whereby it might be swept into the economy along with other political issues. However, voters who are opposed to the extension of socialism in government to the inclusion of medical care nevertheless will be mindful of the present administration's stand on this issue.

Dr. Gunderson's declining to serve on the committee was because he believed that its majority membership and objectives indicated it was "an instrument of practical politics." He doubtless knows whereof he speaks. The chairman of the committee, Dr. Paul Magnuson, is a native of Saint Paul, whose abilities as a Chicago surgeon and executive in the Veterans Administration are well known. He stands well in the opinion of the medical world and his remark as quoted in *Time* (January 14), that we would all be better off if the AMA hierarchy devoted as much time to care of their patients as they do to political maneuvering was unfortunate, to say the least.

That medical care in certain cases may be very costly is universally recognized. This was emphasized as far back as 1929 when the report of the Committee on the Cost of Medical Care was made. The cost of sickness has always been catastrophic in certain instances. That insurance is necessary to protect against today's high cost of sickness is recognized by the profession as well as the public. This is evidenced by the phenomenal increase in the number of hospital and medical insurance policies sold in recent years.

This type of insurance, and not government insurance involving the taking over of the medical care of our citizens, is the answer of the profession as to the present Health Needs of the Nation. These voluntary policies should also, if possible, be written to cover chronic illnesses which can be particularly catastrophic.

The cost of medical care has increased along with every other commodity in recent years. It has not, however, increased more in proportion than other costs. The blame for this cannot be laid at the door of the medical profession but lies more justly with Congress and the administration. Less unnecessary government spending and lower taxes would enable the people to give better care for their medical needs.

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC.

ONE REASON why life in these United States is on a higher plane than anywhere else in the world is the existence of voluntary organizations like the National Society for Crippled Children and Adults, which are supported for the most part by small contributions of American citizens simply out of a kindly concern for their unfortunate fellow beings. Somehow, a dollar contributed out of kindness of heart seems to have a greater value than a tax dollar collected involuntarily. For "the gift without the giver is bare." We would regret to see the many activities for the care of the handicapped now being conducted by these national organizations taken over by governmental agencies. As a matter of fact, we resent the encroachment by the government in certain of these fields which are well supported by voluntary contributions.

The National Society for Crippled Children and Adults was founded in 1921. Since 1934, it has conducted each year an Easter Seal appeal for support. This year, between March 13 and April 13, Easter Seals will be sent to 29 million homes, and opportunity will be given to recipients to contribute to the Society's 10 million dollar program.

The National Society has some 2,000 affiliated Easter Seal societies which receive the support of physicians at the local level, whereas the National Society receives the co-operation of liaison officers of the American Medical Association.

The activities of the societies consist largely in the provision of physiotherapy facilities and trained therapists, psychologists, medical social workers and educators to complement the services of the physician.

LIFE MEMBERSHIP IN MEDICAL ORGANIZATIONS

According to a provision of the constitution of the Minnesota State Medical Association adopted in 1946, members of component county societies who have been active members for forty years and have attained the age of seventy may apply for *life memberships* through their component county society to the Council of the Association. A life membership entitles the possessor to all the rights and privileges of active membership except subscription to Minnesota Medicine,* and he is exempt from dues.

To enable a member to take advantage of this active membership without dues the county medical society of which he is a member must also provide for a life membership free from dues and Hennepin County and Ramsey County medical societies have done just that.

These *life members* are still active members and are counted for determining representation in the AMA House of Delegates.

The AMA membership rules provide that an active member may be excused from the payment of dues when it is deemed advisable by the Board of Trustees, provided that he is partially or wholly excused from the payment of dues by his component society and constituent association.

The opinion, therefore, seems unanimous that a society member who reaches three score years and ten and has been a member for forty years should receive free membership for life in county, state and national medical organizations.

AN EDITOR'S WISH

The following editorial is reprinted verbatim from the *New England Journal of Medicine* (December 20, 1951), as it expresses exactly our wishes.

> It has been an old custom with the *Journal* at this season to prepare and release some sort of editorial statement concerning Christmas. This has usually been in the nature of a brief comment on the advantages of good will among men and the desirability of peace on earth. Depending partly on the world conditions that happened to prevail at the moment and partly on the state of mind of the particular editor who was responsible for the release, the tone of the editorial has been *(a)* hopeful or *(b)* unhopeful. There is no indication that these efforts, regardless of their literary merit, have as yet made any impression on the global situation.
>
> This year the editors have decided to withhold their annual attempt to promote the goodwill industry and to give a try, instead, to the equally prevalent custom of presenting their own Christmas list and to see what comes of it.
>
> Here is what the editors would like for Christmas—and, indeed, for the whole new year.
>
> They would like to receive a reasonable number of topflight new manuscripts—perhaps 250—from which they could make their choice, containing from 800 to 4,000 words each, decently typed with double or triple spacing (including the case reports, footnotes and references) on a typewriter with a fresh ribbon. They would like to have the references limited to those of real significance, following accurately the style of the *Cumulative Quarterly Index Medicus.* (The only impression that inflated "bibliographies" make is a bad one.)
>
> Needless to say, perhaps, any paper that is fit to be published is written in as good English as the author can muster and is then rewritten at least twice, with a number of words discarded at each writing; for anything that is worth saying at all is usually said twice

(Continued on Page 239)

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*Minnesota State Medical Association By-laws, Sec. 4, last sentence: "The privilege of receiving Minnesota Medicine shall be extended to life members upon payment of the regular subscription price."

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

BRITAIN "IMPROVES" HEALTH SERVICE PLAN

The British Health Service, after a struggling and expensive existence of supplying many people with new teeth and new wigs, has recently submitted itself to a change which has recognized the qualities of "human necessities and human frailties."

An editorial in a recent issue of the Toronto, Canada, *Globe and Mail;* takes a logical point of view, stating:

> "In Britain there is all-party agreement on the principle of national health insurance. Debate now centres on the question how to make it work fairly and reasonably. The Conservative Government's decision that small fees will henceforth be charged for various kinds of medical and dental service does not rescind a Socialist policy; nor is it merely a way to save money for the Treasury. *It will improve the health scheme by a recognition of both human necessities and human frailties.*"

The idea that ill health and illness are only hard luck and that the individual in a good society should not have to pay their penalty, was manifested to the fullest extent in the Socialist Government's 1948 health law. Anybody could get, free of charge, whatever medical, surgical, dental and hospital care he needed simply by paying a weekly contribution to a national fund. This, however, has proved impractical. The *Globe and Mail* points out:

> "This is a fine plan on paper but even the Socialists were compelled to admit that it didn't work in practice. Human nature, it was found, does not stand up to the enticements of a health service that is 100 per cent gratis, not even British human nature which is notable for common sense and moderation. When medical advice is to be had for the asking and everything from headache pills to toupees is buckshee, people feel ill oftener than they should and fill up their medicine cabinets with all sorts of superfluous bottles and appliances."

Danger of Decline

Not only did the British health service cost over one-third more than the original estimate for a year, but, according to the paper, "there was a decline or at least the danger of a decline, in the standards of professional health service because people with nothing wrong with them were crowding into doctors' offices, wasting their time and obliging them to scamp the attention they could give each patient."

The changes in the plan are only a modifying policy. There is to be a maximum charge for dental services of one pound, with the state paying the remainder if it is larger, and the patient paying the entire amount if it is smaller. There will be slightly higher charges for private hospital beds, surgical aids and medicines. "These revisions do not alter the basis or framework of health insurance," the Canadian paper states. "They merely make the structure less topheavy."

The editorial concludes that the British government:

> ". . . is saying in effect that illness is not entirely hard luck. The individual has a duty to look after his teeth and his general health. If he fails, he ought to pay at least a small fraction of the expense of putting him right in addition to the regular contribution which only partly covers the cost of insuring him. . . . There is an advance here toward realism as well as toward justice and economy."

NATIONAL FIRM PRAISES DOCTORS

A two-page advertisement for a national automotive concern, seen lately in many national magazines, pays tribute to medical progress by a comparison of transportation facilities in the early 1900's and now.

Under a picture of a doctor in his horse-drawn buggy, is this statement:

> "The oldtime doctor fought disease and ignorance and dirt—and spent his nights on the country roads, going lickety-split to the patient, and at a drowsy jog

on the way home." Over a picture of today's doctor arriving in a car at the patient's home, is this statement: "Today's patient can be reached swiftly: the American Road brings the doctor to every door in the land. To be an American is to be within reach of the miracles of medicine."

Bringing in the development of the automobile as a great step in aiding American progress, the advertisement traces statistics on automobile ownership and their relation to health progress in America:

> "Today nearly every one of the 200,000 U. S. physicians uses the automobile and thousands of visiting nurses depend on the car. More than 28,000 motor ambulances stand ready to bring patients to our 6,430 hospitals.
>
> "There are 50 per cent more hospitals now than at the turn of the century, and hospital-bed capacity has more than tripled. Almost every automobile is an ambulance at some time, it seems, taking the doctor to you, or you to the doctor."

PR PROGRAM GAINS MOMENTUM

The stepped-up public relations program of the American Medical Association, as described by Leo E. Brown, director of the Department of Public Relations, "logically divides itself into two phases: internal and external. The internal phase is concerned primarily with relationships between the AMA and other medical organizations and between the AMA and the individual physician. The external phase is concerned primarily with the attitudes of the public toward the medical profession, either as individuals or as groups."

Speaking at the December public relations conference in Los Angeles, Mr. Brown outlined the following general public relations objectives for the coming year:

> "1. To gain public support for the American Medical Association by informing the people of the policies, objectives, and accomplishments of the Association.
>
> "2. To strengthen the support of members for the American Medical Association by making known to them the objectives, accomplishments, and services of their Association.
>
> "3. To improve physician-patient relationships by encouraging the physician to administer his services promptly, efficiently, and courteously, with understanding of the patient as an individual, and in line with the first sentence of the Principles of Medical Ethics: 'The prime object of the medical profession is to render service to humanity . . .'
>
> "4. To encourage our constituent state and county medical societies similarly to continue and expand their own public relations activities, thereby cementing physician-patient and community relationships at the grass roots.
>
> "5. To work toward the solving of the economic problems arising from the cost of illness."

Mr. Brown pledged the department's constant work to attain these goals through the many public relations media at its disposal. He listed the use of weekly news releases, new and improved brochures, reprints from popular magazines, publicity service for the many councils, bureaus and committees of the organization, radio, television, and film activities, an expanded information service to magazine editors and free lance writers. Also, the department proposed to "(1) continue the promotion of impartial 'grievance committees'; (2) continue the promotion of twenty-four-hour emergency call services; (3) to encourage the physicians to police their own ranks and take disciplinary action against members guilty of unprofessional and unethical conduct; (4) become civic-minded, active in worthy community affairs, and publicly stand for high morals in government; and (5) encourage our state and county medical societies to support and promote other Association activities, such as school health, civil defense, and rural health, as an integral part of their own PR program."

Praises State Work

Concluding his remarks, Mr. Brown put in a word of praise for the excellent work done by state and county medical societies in this field:

> "The co-operation we have received from our state and county medical societies has been excellent, and I want you to know it is appreciated. You have joined forces with us, and I trust we can continue to pull together.
>
> "We have made mistakes during the past year—we will make some during the coming year. There are many things to be done, goals to be achieved, but we are moving ahead and, with your help, will continue to progress."

COUNTY SOCIETY STARTS EFFECTIVE PLAN

In answer to the proponents of socialized medicine who say that there are hundreds of individuals going without medical care who would be guaranteed it under their plan, one county medical society has countered with its own guarantee: to supply medical care for all who cannot afford it. The original vote of the medical society obligates every member to accept a reasonable number of cases.

When the plan was first inaugurated, skeptics were quick to say that it was a publicity gimmick and that it was not on the level. But such is not the case, according to the society's executive secretary, for the plan was genuine and set in a firm foundation. The offer is still good after five years and many other counties have tried and found this same type of program successful.

The proof came in the actual working out of the program. In six months after the first advertisement announcing the plan, there had been only fifty-nine calls altogether. The executive secretary stated:

> "When we come face to face with some of the 'do-gooders' who tell us there are dozens of persons in this town going without medical care, we are able to say, 'That is interesting to us; would you get us the name of the first lady you would like to have taken care of in the group you are talking about?' In one instance, we needled a small group for three weeks trying to get the name of the first person they were talking about. It is surprising but very pleasing to see the reactions when we follow up on the false claim that there are hundreds of persons going without care. At the same time, it is a great source of satisfaction when you find someone who really needs it, who is going without it, simply because he just does not know where or how to find the physician who will be willing to take care of him without charge."

Summing up the obvious public relations value of such a program, he said:

> "Our doctors are not operating the jackpot I referred to earlier. They are just being good doctors and good neighbors. We believe that medical public relations are better in those local counties where the guaranteed medical-care-for-all plan exists, because in those counties the ethical physician, who will abide by the solemn promise never to turn his back on human suffering because he might not get paid, is not a mythical character. He is not someone whose name can't be remembered in times of sickness or apparent need. He is easy to find, because he is the total local medical profession. He is the county medical society."

It is rare, indeed, to see an American child with a hunchback as a result of infection with bovine tuberculosis. Virtual eradication of this disease in cattle has nearly eliminated one very important source of infection in children and in adults who might be exposed to the infection through direct contact or consumption of milk from tuberculous cattle.—C. H. PALS, D.V.M., Am. J. Pub. Health, September, 1951.

THE HYPERSPLENIC STATE

(Continued from Page 224)

11. Rogers, H. M., and Langley, F. H.: Neutropenia associated with splenomegaly and atrophic arthritis (Felty's syndrome): report of a case in which splenectomy was performed. Ann. Int. Med., 32:745, 1950.
12. Singer, K., and Dameshek, W.: Symptomatic hemolytic anemia. Ann. Int. Med., 15:544, 1941.
13. Singer, K.; Miller, E. B., and Dameshek, W.: Hematologic changes following splenectomy in man, with particular reference to target cells, hemolytic index and hypolecithin. Am. J. M. Sc., 202:171, 1941.
14. Steinberg, C. L.: The value of splenectomy in Felty's syndrome. Ann. Int. Med., 17:26, 1942.
15. Stickney, J. R., and Heck, F. J.: Primary nonfamilial hemolytic anemia. Blood, 3:431 (Apr.) 1948.
16. Watson, C. J.: Hemolytic jaundice and macrocytic hemolytic anemia: certain observations in a series of 35 cases. Ann. Int. Med., 12:1782, 1939.
17. Wilson, W. H., and Hamilton, A. T.: Splenectomy as a method of treatment in a case of Felty's syndrome. South. M. J., 44:902 (Oct.) 1951.
18. Wiseman, B. K., and Doan, C. A.: Primary splenic neutropenia; a newly recognized syndrome, closely related to congenital hemolytic icterus and essential thrombocytopenic purpura. Am. Int. Med., 16:1097, 1942.
19. Young, L. E.; Miller, G., and Christian, R. M.: Clinical and laboratory observations on autoimmune hemolytic disease. Ann. Int. Med., 35:507 (Sept.) 1951.

AN EDITOR'S WISH

(Continued from Page 236)

as well in half the number of words. Its tables and charts are few and simple and properly captioned. In its final state it is crystal clear and informative and meets some need other than that of the author for publicity.

After all, the only really valid reason for writing a scientific medical article is to present the results of useful investigation or seasoned experience, thus adding to the sum of medical knowledge, or to bring together and correlate existing knowledge in order to make it more easily available. Only occasionally is a single case worth reporting, to remind a journal's readers of the existence of some condition that may cause diagnostic confusion or to add to the knowledge of its treatment; it should be reported with the utmost brevity. A case report should always point a moral, whether or not it may adorn a tale.

The editors would like to find in their stockings the promise of a series of inspired and carefully worded editorials on a variety of pertinent subjects and a salty but amiable correspondence suitable for publication. They would be pleased with a strict observance of deadlines on all promised material.

Given these things, a circulation that continues to expand, and a growing list of contented advertisers, they will believe that there really is a Santa Claus!

Minnesota Academy of Medicine

Meeting of May 9, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, May 9, 1951. Dinner was served at 7 o'clock and the meeting was called to order at 8:10 p.m. by the President, Dr. W. H. Hengstler.

There were forty-eight members and eight guests present.

Minutes of the April meeting were read by Dr. Charles Rea, in the absence of the secretary. They were approved as read.

Dr. A. E. Benjamin read the following Memorial to Dr. H. B. Sweetser, Sr., and a motion was carried that it be spread on the minutes and a copy sent to the family.

HORATIO B. SWEETSER

1861-1950

Dr. Horatio B. Sweetser, of 2509 Pillsbury Avenue, Minneapolis, died May 23, 1950, at the age of eighty-eight. He was born in Brooklyn, New York, July 13, 1861. Doctor Sweetser was graduated from St. John's College in the city of his birth in 1877, receiving his medical degree from the College of Physicians and Surgeons in New York City in 1885. A period of internship was served in St. Francis Hospital of New York from 1885 to 1886. Doctor Sweetser engaged briefly in the practice of medicine in New York before journeying to Minneapolis in 1887.

Doctor Sweetser served as professor of anatomy and surgery at Hamline University in Saint Paul and in a similar capacity at the University of Minnesota Medical School following a merger of these two medical departments.

Doctor Sweetser was a charter member of St. Mary's Hospital of Minneapolis. His affiliation with this hospital coincided with his arrival in this community in 1887, and for many years he ably served as Chief of Staff at St. Mary's.

Doctor Sweetser was a member of the American College of Surgeons, the Western Surgical Association, the Minnesota Academy of Medicine, over which he presided in 1919, the Minneapolis Surgical Society of which he was president in 1927, the Hennepin County Medical Society, whose activities he directed in 1899-1900, the Minnesota State Medical Association and the American Medical Association.

Doctor Sweetser was a member of Phi Rho Sigma, undergraduate medical fraternity, the Minneapolis Athletic Club, the Minneapolis Automobile Club, and the Bloomington Golf Club.

The family name will continue to be ably associated with medicine through the two sons who survive him, Theodore H. Sweetser, M.D., and Horatio B. Sweetser, Jr., M.D. There are two daughters, Mrs. Frank Preston of Minneapolis, and Mrs. Elizabeth Albrecht, of Belle Plaine. Doctor Sweetser's wife preceded him in death in 1936.

Doctor Sweetser was a dynamic person. He was a good clinician and surgeon, a keen observer, and a conscientious practitioner. He had the confidence of his patients and the esteem of his confreres.

We all admired his analytical mind and deep convictions. He was a good debater and loved to match his wits on any debatable question with his colleagues. His arguments carried weight in committee and general meetings of the organizations to which he belonged. He was a faithful attendant at the meetings of the Academy.

His patients were well served by his skills and accomplishments.

Dr. E. T. Evans read the following Memorial to Dr. Vernon L. Hart.

VERNON L. HART

1898-1950

Vernon L. Hart was born on October 24, 1898, in Huron, Ohio. He received his medical education at the University of Michigan where he was graduated in 1924. From 1924 to 1932, he served on the surgery and orthopedic services at Ann Arbor. He served as Head of the Department of Orthopedics prior to establishing private practice in Dayton, Ohio, from 1932 to 1933.

In the fall of 1933, he established residence in Minneapolis, taking over the practice of the late Dr. Emil Geist, maintaining that high quality of practice initiated by Doctor Geist.

He was a Fellow of the American College of Surgeons and a Diplomate of the American Board of Orthopedic Surgeons. He was a Fellow of the American Academy of Orthopedic Surgeons and a member of the Clinical Orthopedic Society. He was, of course, a member of the American Medical Association and of the State and County Medical Societies. We remember him best as a member of this Academy.

He enjoyed an enviable reputation based upon meticulous attention to detail and a keen appreciation of the fact orthopedic disabilities are frequently major disasters in the life of the patient. Because of this he was beloved by his patients and respected by his colleagues. He was a member of the active staffs of Swedish, St. Barnabas, Abbott and St. Mary's Hospitals. He remained active in teaching in association with the University Hospital group.

I have mentioned his attention to detail. He carried this into every effort of his professional career and it was reflected in numerous contributions to orthopedic literature in which he insisted upon carrying out a logical and orderly procedure. He will long be remembered for his classical contribution to early diagnosis and evaluation of dysplasia of the hip and its relation to congenital dislocation of the hip.

He entered Service in World War II as a Major of the Army Medical Corps on May 12, 1941, and served with distinction until his separation from Service on April 1, 1946, with the rank of Lieutenant Colonel, at which time he was Orthopedic Consultant to the 5th Army Area.

He was a member of the National Research Council and in 1948 he served as a civilian consultant to the Surgeon General United States Army, inspecting the American Zone in Germany.

He had a host of friends, professional and non-professional, to whom his untimely death on July 12, 1950, came as a great shock.

The community, and the orthopedic profession especially, joins in tribute to a real gentleman, a fine teacher, and a talented surgeon. It extends its sympathy to his wife, Ruth, and daughter Louisa K., who, in their bereavement, are sustained with pride in his achievements.

A motion was carried that this memorial be spread on the minutes of the Academy and a copy sent to Doctor Hart's family.

The chairman of the Program Committee discussed programs for the future, for consideration by the members prior to discussion at a future meeting.

The scientific program followed.

PLASTIC OPERATIONS FOR HYDRONEPHROSIS

With Particular Reference to the Foley Y-plasty

FREDERIC E. B. FOLEY, M.D.
Saint Paul, Minnesota

(This paper will appear in a later issue of MINNESOTA MEDICINE)

ROENTGENOLOGIC DIAGNOSIS OF BENIGN GASTRIC ULCER

A Preliminary Report of 133 Cases*

C. J. CORRIGAN, M.D. and HAROLD O. PETERSON, M.D.

(Abstract of presentation with numerous lantern slides by Dr. Peterson)

What is the incidence of malignancy in gastric ulcers which appear benign roentgenologically? That is the question which prompted the present study. The impression gained from the literature is that 10 to 30 per cent of gastric ulcers are malignant depending on their location. Ulcers on the greater curvature are considered to be 100 per cent malignant. There is one serious criticism of all the statistics of this type, namely, that they include only operated cases or cases studied postmortem. This represents a select group and does not include all the people who have gastric ulcers and never come to surgery or autopsy. A group which would include all gastric ulcers with or without surgical treatment would obviously be a more accurate representation. Unfortunately such a group would lack histological verification in a high percentage and one would have to depend on the clinical and roentgenological course for the final diagnosis.

Because we could not recall a single case of benign gastric ulcer being later proved to be malignant we decided to make an accurate investigation of our cases. All the patients who had had a diagnosis of benign gastric ulcer roentgenologically during the past 11 years were included in this study. To this group were added all the cases in which a benign ulcer was found in the surgical or autopsy specimen even though the roentgen diagnosis had been indeterminate or suggested carcinoma. All of the patients had been examined either at the Miller Hospital in Saint Paul or the Interstate Clinic in Red Wing, Minnesota.

Over an eleven-year period, 133 cases of gastric ulcer were collected and an attempt was made to obtain follow-up information on all of them. Seven of these were diagnosed roentgenologically as being carcinoma or probable carcinoma and all proved to be benign histologically. The remaining one hundred and twenty-six were called benign roentgenologically. Fourteen of these had histologic studies and three carcinomas were found. In one of these three cases postmortem studies cast some doubt as to whether the carcinoma actually arose in the stomach. The second case was a huge carcinoma of the stomach and should have been diagnosed as such roentgenologically and is therefore an error in judgment which should not have been made. The third carcinoma was superficial in type involving only the mucosa in a small zone around the ulcer with no tumor cells in the ulcer itself. Hebbel believes these cases are primary superficial carcinomas of the stomach with secondary ulceration. They cannot be distinguished roentgenologically from a benign ulcer.

Five other cases were operated upon but no specimen obtained. Four of the five had gastro-enterosto-

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*Since this presentation, fifteen more cases have been added to the original 118 and have been included in the summary to bring the total to 133 cases.

TABLE I.
CASES WITH LESS THAN 1-YEAR FOLLOW-UP

Healed by X-ray Examination	15
Not healed	8
Improved	9
No follow-up	6
Dead (1 Ht. disease; 1 hemorrhage from BGU)	2
Total	40

TABLE II.
CASES WITH MORE THAN 1-YEAR FOLLOW-UP

Years Follow-up	Well	Not Well	Dead	Total
1-2	11		1	12
2-3	9		1	10
3-4	6		1	7
4-5	9		1	10
5-6	8	2	1	11
6-7	4	1		5
7-8	1		1	2
8-9	4		1	5
9-10	1			1
10-	4			4
Total	57	3	7	67

mies and the fifth case required surgery to close a perforation. To summarize the twenty-six surgical and autopsy cases, nineteen had gastric resections, four gastroenterostomies, one closure of perforation, one exploration followed by autopsy, and one autopsy after terminal hemorrhage.

The remaining 107 cases had a clinical follow-up with or without repeated roentgen examinations as shown in Tables I and II.

There were thirteen deaths in the entire group, of which six were not related to the gastric ulcer and seven were related. Of the seven deaths related to the ulcer three occurred in the immediate postoperative period and a fourth postoperative death followed a third operation necessitated by complications from the gastric resection. Two medical deaths followed gastric hemorrhage and one patient died as a result of obstruction from an hour-glass stomach at the age of eighty-six.

The ulcers were located as follows: forty-three in the prepyloric area all benign; eighty-eight on the lesser curvature above the prepyloric area with three carcinomas; and two on the greater curvature both benign. The size of the ulcer had no significant relationship to the incidence of malignancy.

Only thirty cases had gastric analysis and many of these were done with alcohol and not histamine. Most of these had free hydrocholric acid values of less than 30° and some were achlorhydric.

Conclusions

1. Three known carcinomas were found in 133 cases of gastric ulcer.

2. The size and location of the gastric ulcer is of no diagnostic aid in the differentiation of benign or malignant ulcers.

3. Achlorhydria is of no value in the differential diagnosis of benign gastric ulcers.

4. Superficial carcinoma of the stomach with ulceration cannot be distinguished from benign gastric ulcers. This is a very rare type of ulcer.

5. No case of gastric ulcer should be dismissed until the ulcer has either healed and remains healed for a reasonable time or a resection has been done.

References

1. Hampton, A. O.: Incidence of malignancy in chronic prepyloric gastric ulceration. Am. J. Roentgenol., 30:473, 1933.
2. Hebbel, R.: Superficial carcinoma of the stomach. Bull. Univ. Minn. Hosp. & Minn. Med. Foundation, 22:59-67 (Nov. 3) 1950.
3. Kirklin, B. R. and MacCarty, W. C., Jr.: Incidence of malignancy in prepyloric ulcers. JAMA, 120:733-735, 1942.
4. Sproull, J. A.: A discussion of the occurrence of benign ulcer on the greater curvature. Am. J. Roentgnol., 25:464 (Apr.) 1931.
5. Panel Discussion: Relationship of gastric ulcer to gastric cancer. Cancer, 3:515-552 (May) 1950.

Discussion

Dr. L. G. Rigler, University of Minnesota. This is a very interesting paper to me because we have gone through a great many evaluations on this subject. A great many years ago, L. G. Cole said he thought there were many cases in which he could establish a diagnosis. He thought that in about 90 per cent one could say with great certainty that an ulcer is benign or malignant, and in 10 per cent no distinction could be made. I used to think that, but in later years I have learned from sad experiences that this is an optimistic view. I think we at the University Hospital have a rather unsatisfactory experience as we don't see the ordinary garden type of case. I don't think I would have disagreed with any but one of those Dr. Peterson presented. The cases we see are much more irregular and I suppose that is natural. We have a conference with the surgeons each week, and all the material of the week is then exhibited; we then try to make a statement as to what it is. We have had the experience of having the surgical pathologist and the surgeon with the specimen in front of them still uncertain; sometimes they are 100 per cent wrong as to what it is. It certainly is true that in a few cases, a small very benign looking ulcer proves to be a carcinoma. The unfortunate thing is that one is not always sure as to which we are dealing with. I do think one has to bear in mind the kind of material one is dealing with—whether it is the ordinary material that comes into a clinic, for instance, or those we see which give a lot more trouble.

Dr. O. H. Wangensteen, University of Minnesota: This recital of Dr. Peterson's experience has been impressive. However, I am inclined to agree with Dr. Rigler that when Dr. Peterson has all the reports in on his cases, he may find his present judgment tempered by a more complete evaluation of his own experience. There are no Delphic Oracles in Medicine. Even the pathologist, with the excised lesion in his mind, finds it necessary quite often to await the verdict of the microscope before giving his opinion with reference to the important question of whether an ulcerative gastric lesion is a benign ulcer or a cancer. And every now and then, the pathologist finds it necessary to reverse himself. The circumstances are usually these. A large craterous gastric ulcer has failed to heal completely under medical management. The pathologist, when he has examined many sections cut from several areas in the ulcer gives the verdict of a benign ulcer. A year or two goes by, and the patient feels well. Then presently, his health begins to fail. He comes back looking like a scarecrow. His neighbors know that the patient had an operation upon his stomach. They know now that he had cancer. They believe, the patient has a recurrence. Moreover, they are probably right. The surgeon has the pathologist look at the patient. The gross specimen is resurrected; many more sections are cut. And the cancer is found. I have had this experience several times. It concerns almost invariably a large ulcer. Certainly not every large ulcer is a cancer. Nevertheless, such large ulcers should be suspect.

Determination of gastric acidity is important. The incidence of achlorhydria or hypochlorhydria in gastric cancer is frequent. To be certain, there are patients with gastric cancer who have free HCl in the gastric contents; however, such patients are in the minority. It is amazing how frequently physicians omit performance of gastric aspiration to determine gastric acidity. In the Cancer Detection Center, asymptomatic patients, who are found to be achlorhydric to histamine, are subjected to x-ray examinations of their stomachs. During the past year, I have seen three achlorhydric patients, who, at operation were found to have gastric cancer. All three had been treated as having peptic ulcer on the basis of x-ray evidence, without having had the gastric contents assayed for free HCl. One of them had been gatroscoped several times!

As Dr. Rigler intimated, Cole of New York City was in part responsible for the veering about in attitude toward a more conservative treatment of gastric ulcer. Here in the mid-west, Wilson, MacCarthy and Carman of the Mayo Clinic, as well as William J. Mayo and C. H. Mayo were supporting the thesis that a benign gastric ulcer may become transformed into a cancer. Some of that discussion generated more heat than light. Certainly, it should be said now, that whereas the danger of malignant transformation probably was not as great as some of the men of the Mayo Clinic of that day believed it to be, nevertheless, when the problem is reviewed in the aggregate, bearing in mind all the practical implications, the men of the Mayo Clinic held, for that day, what today might be called a very modern view.

All the evidence points directly toward the necessity of viewing the persistent gastric defect with suspicion. We would all agree with Dr. Peterson that the garden-variety of ulcer occurring typically on the lesser curvature just above the infundibulum which disappears completely under medical management—such an ulcer need not be suspect for cancer. It may come back nevertheless in the very same area after the elapse of some months, with reassertion of clinical symptoms. In thirteen patients in our Clinic with x-ray defects on the lesser curvature, which healed out completely, adjudged from disappearance of a defect detectable by x-ray examination, gastric resection was carried out anyway. One of the thirteen had a cancer. In only one of the remaining twelve was the defect completely covered with epithelium. In all instances, peninsulas of epithelium went out from the edges of the ulcer, but in most of the instances, these bridges of epithelium did not cover the defect completely. I regard this microscopic study of apparently healed gastric ulcers as important. These observations of my surgical colleagues, Drs. Henri, Sanchez, Lyle Tongen and Stanley Friesen have not been published yet. They do indicate however why the ulcer frequently comes back in the very same spot. The ulcer probably failed to heal completely in the first instance leaving an area unprotected by normal gastric epithelium.

The important bits of evidence however which confront anyone who takes the point of view with reference to diagnostic accuracy in differentiating whether a persistent gastric defect is a benign ulcer or a cancer by *any* means other than microscopic verification are the reported findings of pathologists upon the histology of allegedly benign gastric ulcers removed by surgeons. In the experience of the Lahey Clinic (1948) this figure is 18 per cent; at the Massachusetts General Hospital it is 14 per cent; for our own Clinic it is a little more than 10 per cent. If one affects the role of a prophet in this difficult task of deciding, in certain persistent defects, whether a lesion is benign or malignant, his prophecies may boomerang upon him.

Whereas, striving for perfection is a laudable, if unattainable, objective in many spheres of our activity, we may justify the censure of our colleagues or society if in striving for such perfection, we assume risks for our patients which experience suggests we are not warranted in taking. There are times when we must ask ourselves: What is the important consideration here? Is there a good chance that I may be wrong? Yes, we are all human and very fallible. Long years ago, my colleague, Dr. Rigler began including in his report in questionable situations the following statement: "The presence of cancer cannot be excluded." That statement serves to alert the clinician to the potential serious import of the condition. It has had, in most instances, a very salutary effect upon the physician. It puts the responsibility where it belongs. What if the roentgenologist said I believe the lesion is benign and advise a period of conservative management. Why should he assume this responsibility? Here striving for academic perfection is a disservice to the patient and those responsible for his care. I feel that Dr. Rigler should be commended for his frankness and his sincerity. That view is synonymous with alertness in the early detection of gastric cancer.

Dr. L. A. Nash, Saint Paul (by invitation): Since I am a guest of the Society and also an associate of the speaker, I hesitate to raise my voice. I do not believe that on radiological criteria alone, most of us can be as sure of ourselves in this matter of seperating cancer ulcers from benign ones as Dr. Peterson appears to be. As a radiologist, I have been accused of playing into the hands of the surgeons in favoring early resection of gastric ulcers, basing my thinking on the idea that cancer must be removed early to be cured. The errors we make are greater in each group of cases than the current operative mortality. However, with improved apparatus and increased knowledge, there is growing evidence that the differentiation can be made more often and I think Dr. Peterson has indicated that tonight. On the other hand, I must agree with Dr. Wangensteen and will wait with interest a second hundred cases to be reported by Dr. Peterson to see if the diagnostic error does not approach the "standard error of diagnosis" occurring in other documented analyses.

Dr. Peterson, in closing: I wish to thank the discussors for their frank remarks. I expected considerable criticism of this paper since it presents a viewpoint directly opposite to the prevailing opinion of most surgeons and many radiologists. Before looking up our cases of gastric ulcer, I had the impression there would be very few, if any, ulcers which were diagnosed as benign that proved to be malignant. Until two weeks ago we had not uncovered a single proven carcinoma; but, in reviewing the earliest patients who were examined and operated on ten years ago, we discovered two malignancies. This low incidence of malignancy (two in 118 cases) substantiates my impression. I believe the chief reason for the scarcity of carcinoma in this group of ulcers is the fact that these cases represent the typical clinical type of gastric ulcer observed by the average physician in private practice. The group is not limited to people who have had resections, especially in the larger centers, but include every one with an ulcer demonstrable on roentgen examination whom we have studied during the last ten-year period. The lack of histologic proof on most of these cases can be criticized but

(Continued on Page 250)

Minneapolis Surgical Society

Meeting of May 3, 1951

The President, HARVEY NELSON, M.D., in the Chair

SURGERY OF TUMORS AND HYPERFUNCTIONING STATES OF THE ADRENAL GLANDS

DAVID STATE, M.D.
Minneapolis, Minnesota

The striking clinical picture which accompanies derangements of the adrenal glands has made these conditions a most interesting subject for study. The purpose of this paper is to present the examples of the more common derangements of the adrenal glands seen and treated at the University Hospitals from 1941 to 1951.

Embryology

The medulla is derived from the embryonic neural crest and thus has a common origin with the sympathetic ganglia. The cells are further differentiated into nerve cells and chromaffin cells, the latter taking a characteristic brown color with chromic acid stain.

The cortex arises from the celomic epithelium near the origin of the germal epithelium of the sex glands.

The adrenal is largest at birth with the major portion of the gland being composed of adrenal cortex. The latter is divided into large inner androgenic or "X" zone and a thin outer layer of cortical cells similar to that observed in later life. The reduction in size of the adrenal cortex after birth is due to the rapid degeneration of the "X" zone and the true cortex which is left behind, continues to grow and develop. Adrenal cortical cells grow continuously from without in, that is, cells arise from the spindle shaped cells under the fibrous capsule and pass inward to form the three zones; the zona glomerulosa, the zona fasiculata and zona reticularis.

Physiology

Adrenal Medulla.—Adrenalin is apparently formed from the chromaffin cells. The release of adrenalin is largely an emergency function and as is well known, causes vascular constriction, dilatation of the coronaries, increased contractility of the heart, etc. The adrenal medulla, however, is not absolutely essential for life.

Adrenal Cortex.—Hormones elaborated here manifest the following distinct metabolic activity: (1) maintenance of the electrolyte and water balance, (2) influence on carbohydrate metabolism and (3) augmentation of protein anabolism.

The importance of the adrenal cortex is related to various stresses such as burns, trauma, fatigue, etc., has been recently emphasized by Selye. How the adrenal cortex helps in homeostasis is not entirely clear. The cortex is essential for life.

Diseases of the Adrenal Glands

Tumors of the Adrenal Medulla

Neuroblastoma.—These tumors arise from the nerve cells of the medulla and depending upon the stage of development of the cells at the time of neoplasm formation, the tumor has a varied malignancy. The neuroblastoma is by far the most common and it is the most common neoplasm of the abdominal cavity in children under the age of four. Clinically these tumors are small and encapsulated early but they are soon capable of invasion of the adjacent organs such as, kidney, mesentery, vertebra, pancreas, etc. Metastases also occur readily both by lymphatic and blood streams with the lung, liver, brain and skeletal system most often being involved. The patient most frequently complains of vague symptoms such as, weakness, easy fatigability, loss of appetite and pain in the back. Examination reveals, usually, an enlarged abdominal mass. Treatment, ideally consists of excision of the tumor but because of the rapid growth this is rarely possible. Roentgen therapy should be given even though metastases may be present. Farber has seven patients out of thirty-two who have survived two or more years following either complete surgical removal or x-ray therapy. Two of these patients had liver metastases.

Pheochromocytoma.—This neoplasm arises from the chromaffin cells of the adrenal medulla and produces symptoms characteristic of those due to release of adrenalin into the blood stream. One, therefore, sees arterial hypertension, tachycardia, nausea, vomiting and sweating. Green has shown that symptoms may be chronic or persistent as well as intermittent. Diagnosis may be assured by the use of a sympatholytic drug such as, dibenamine or benzodiazine which cause a fall in blood pressure if the hypertension is due to pheochromocytoma.

From a surgical point of view, the major problems in handling cases of pheochromocytoma are those related

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Inaugural report presented before the Minneapolis Surgical Society, May 3, 1951. Studies herein reported were supported by grants from (1) Graduate School, University of Minnesota, (2) Malignant Disease Research Fund, and (3) Flora L. Rosenblatt Fund.

to the marked elevation of blood pressure associated with manipulation of the tumor during operation and the percipitous fall following removal of the tumor. In order to combat the former, a short acting drug such as benzodiazine or amyl nitrate by inhalation may be used. To counteract the marked fall in blood pressure which occurs after removal of tumor the following points are important. (1) Epinephrine in 1/100,000 solution, whole blood, and adrenal cortical extract should be available before operation is started. An "intravenous" with a large bore (No. 15) needle should be inserted before operation is started. (2) Wide exposure of the adrenal should be obtained so that manipulation is reduced to a minimum and the vascular supply to the gland is made available for clamping. The transabodominal approach is excellent in this regard. (3) Before removal of the tumor, the pedicle should be clamped and released repeatedly with the period of occlusion gradually increased until the pressure remains stable after a period of ten minutes of pedicle clamping. (4) If a percipitous drop of blood pressure occurs the epinephrine solution and whole blood should be given quickly and in sufficient quantities to bring back the blood pressure to normal levels. Adrenal cortical extract in doses of 10 cc. intravenously should also be given. Postoperatively, the patient should be watched carefully for delayed drops of blood pressure.

The mortality rate continues, however, to be high and the longer the duration of the disease the higher the mortality. In children, to date, the death rate in the operation has been very high, about 58 per cent.

Diseases of the Adrenal Cortex

Hyperadrenocorticism.—Nearly all cases may be divided on the basis of their predominating metabolic manifestations into two groups: (1) Adrenogenital syndrome and (2) Cushing's syndrome.

1. *Adrenogenital Syndrome*

(a) *Congenital adrenal hyperplasia in the female.*—This is the most common adrenal disorder encountered in children. At birth these children have an enlarged clitoris which is bound ventrally by a fibrous cord. The labia majora are hypertrophied while the labia minora are underdeveloped. There is a single urogenital sinus which gives a common opening for the urethra as well as the vagina. Uterus, ovaries and Fallopian tubes are present. From birth on there is rapid somatic growth, sexual hair growth, muscular development and epiphysial ossification. The voice becomes deep and the excretion of 17 ketosteroids is always increased in relation to the patient's age.

Pathology.—Both adrenals are usually enlarged to about one and one-half to three times normal size. Occasionally the hyperplasia appears to be unilateral. Microscopically the glands are composed largely of polyhedral granular cells similar to those of the foetal androgenic or "X" zone.

Differential diagnosis.—The condition must be distinguished from (1) intersexuality or hermaphrodism, (2) postnatal virilization and (3) sexual precocity of the iso-sexual type. Differentiation from these conditions is made upon the fact that from birth on the clitoris is enlarged and there is urogenital sinus for a common opening for urethra and vagina. These other conditions that may simulate pseudohermaphroditism of the female but they do not have a urogenital sinus.

Treatment.—This is a complex and difficult task. Unfortunately, the removal of one adrenal or portions of both adrenal glands has resulted in no significant change in the clinical course. Recently Wilkins has called attention to the fact that cortisone may possibly repress excessive androgenic function and this is worthy of trial to prevent progressive virilization in selective cases. If the diagnosis is made early in childhood it may be well to raise the child as a girl and to this end the the clitoris may be amputated. At the time of puberty attempts at increasing femininity may be made by using estrogenic hormones. Where the patient has been raised as a boy it is best to pursue this path for at puberty there is excessive androgenic activity. The chordee may be corrected and plastic procedures to form a penile urethra may be carried out.

(b) *Adrenal hyperplasia in males (macrogenitosomia praecox).*—In this condition the penis is usually enlarged at birth but this may not occur until the child has reached one and one-half to two years of age. The voice becomes deep and other evidences of secondary sex characteristics such as, hair on the pubes and in the axillae and on the face, also develop early. The excretion of 17 keto-steroids is markedly increased but the testes characteristically remain small and immature. This latter point is of extreme importance in the differential diagnosis of this condition from other endocrine disturbances which may give a similar clinical picture. Although somatic growth is rapid at first, epiphyseal fusion occurs early so that by the tenth year growth is completed and the patient remains a short adult with broad shoulders and powerful muscles.

Treatment.—There is no effective way of inhibiting the excessive production of adrenal androgens but in the male the outlook is much happier than in the female with congenital hyperplasia because the patient ends up with masculine features although he is short and stocky. It may also be possible to delay early epiphyseal fusion in certain cases by the use of cortisone. As in the female patient, special attention must be paid to the psychotherapy of the individual so that he can be eased into his environment with the greatest facility.

(c) *Virilizing tumors in females.*—Excessive androgenic activity of the tumor is characterized by the rapid growth of the clitoris, appearance of pubic and axillary hair, deepening of the voice and the onset of seborrhea and acne. Unlike the patient with congenital hyperplasia of the adrenal, however, the external genitalia are normally formed. The 17 keto-steroid excretion is increased and the beta faction may also be increased. These neoplasms are prone to be malignant and may metastasize early to lung or bone or to the liver. Treatment consists of removal of the adrenal tumor. If therapy is successful there is reversion of the patient to a normal female appearance. In addition the excretion of 17 keto-steroids is repressed to normal levels and remain so if there are no evidences of recurrences.

(2) *Cushing's Syndrome.*—This syndrome is characterized by increasing obesity of the "buffalo" variety, that is, deposition of fat about the shoulders and face, weakness, purple striae of the abdomen, increased capillary fragility, osteoporosis, hypertension, virilization of the female, diabetic blood sugar curve, increase in serum sodium and decrease in serum potassium. There is an increase in the urinary excretion of 11 oxysteroids and 17 keto-steroids. In children there are evidences of sexual precocity but not as marked as in congenital hyperplasia.

Pathogenesis.—Thompson and Eisenhardt studied ninety-eight cases that came to autopsy and showed that basophil adenoma of the pituitary is found in approximately 60 per cent and adrenal tumors in 22 per cent. It is generally agreed that the symptoms of Cushing's syndrome with or without pituitary tumors are due to excessive production of the hormones of the adrenal cortex. Wilkins states that all cases of Cushing's syndrome beginning before the age of eleven years are due to adrenal tumors.

Treatment.—When the Cushing's syndrome is due to adrenal tumor its removal results in reversion to normal on the part of the patient. When adrenal hyperplasia occurs the treatment of Cushing's syndrome is usually unsatisfactory. Radiation of the pituitary and the use of testosterone and estrogens to combat osteoporosis has been advocated. From a surgical point of view, removal of one adrenal gland usually results in little change though we have encountered one patient who had excellent results following unilateral adrenalectomy and the group at the Mayo Clinic have performed bilateral subtotal adrenalectomy in three patients with appreciable improvement.

General Comments Concerning Localization and Removal of Adrenal Cortical Tumors

Localization may be difficult when the tumor is not palpable. A flat plate of the abdomen may show calcification and planograms are helpful and should be done in all cases. Pyelograms may show abnormal displacement of one kidney by an overlying mass. Cahill advocated perirenal air insuflation but this is not without danger and results are frequently inconclusive. Whenever clinical and laboratory findings are sufficient to suggest an adrenal tumor, provided the patient is in the best possible shape, laparotomy should be carried out.

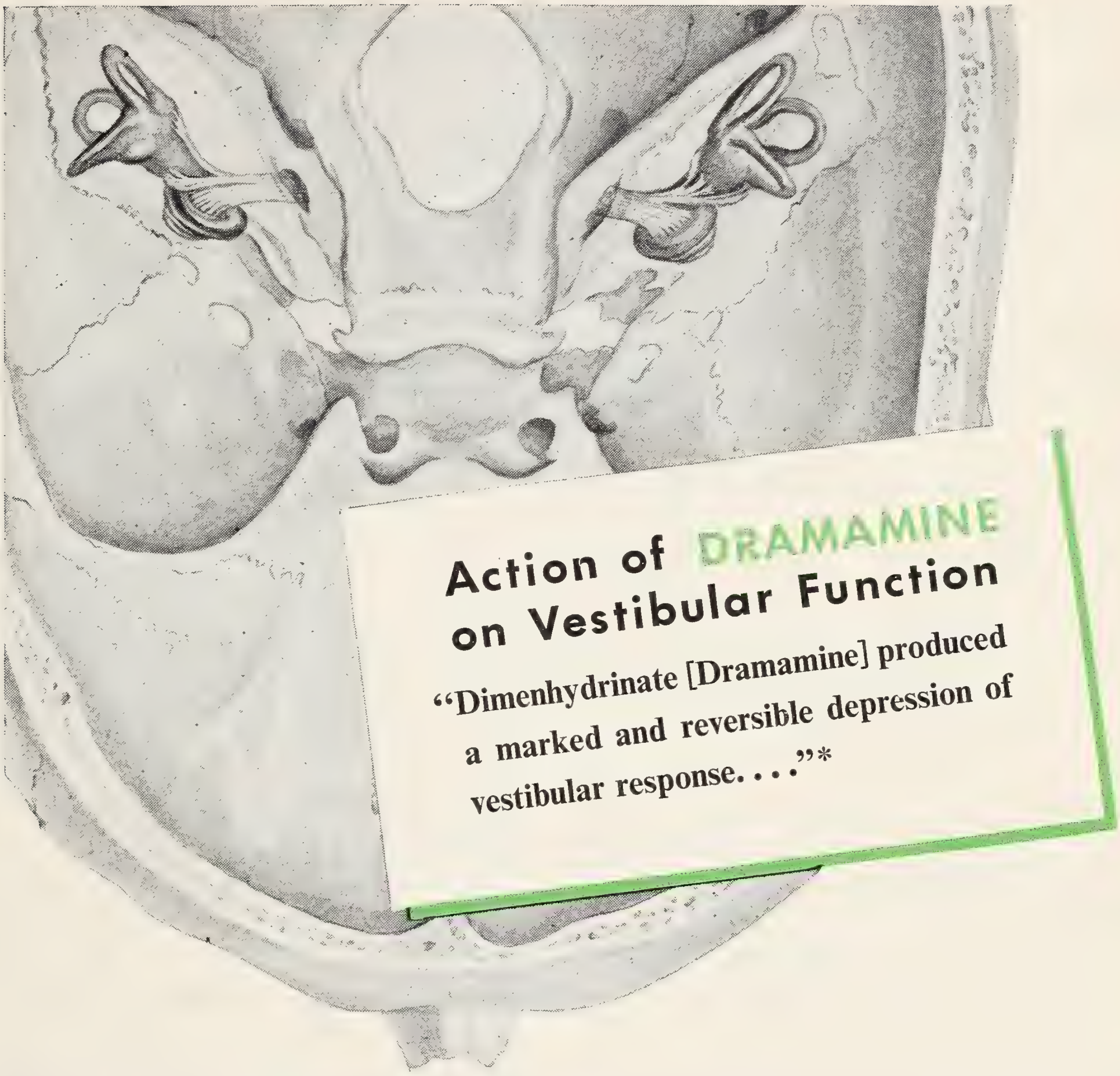
The preoperative preparation of the patient is extremely important and laboratory tests such as the eosinophil count, electrolyte pattern and diuresis test of Robinson-Power and Kepler should be carried out in order to determine the possibility of late adrenal insufficiency. To prevent acute adrenal insufficiency from occurring throughout the operation or immediately following removal of an adrenal tumor, the patient should be given glucose and salt solution prior to the operation. 10 cc. of whole corticoadrenal extract should be given intramuscularly the night before surgery and again in the morning prior to sending the patient to the operating room. An intravenous drip containing glucose and saline should be started at the time of operation and prior to opening the adrenal cavity, 10 cc. of adrenal cortex extract are given intravenously. If the opposite gland is atrophic or absent, portions of the involved gland should be left if at all possible. If this is not possible adrenal insufficiency should be anticipated and treatment carried out immediately.

Surgical Approach.—Standard surgical approaches to the adrenals are (1) extra-peritoneal nephrectomy incision, (2) the longitudinal lumbo-dorsal incision, (3) the transperitoneal approach through either a transverse or vertical incision of the abdomen and (4) the transpleural route. In our cases the transperitoneal approach has been preferred because it affords visualization of both adrenals as well as the entire abdominal cavity to rule out the possibility of ectopic adrenal tissue. This incision has permitted also better visualization and clamping other vessels of the adrenal before manipulation or removal of the adrenal neoplasms. The abdominal incision should be closed with interrupted stitches of non-absorbable sutures and possibly steel sutures are the best in this regard for these patients have a tendency for infection and their wounds do not heal kindly or readily. This is interesting in light of the experimental evidence to indicate the depressing action of cortisone upon wound healing in experimental animals.

Discussion

Dr. Harvey Nelson: Such an interesting and comprehensive presentation of a condition that most of us see infrequently certainly warrants some comment and discussion. If you have had no more experience with adrenal tumors than I, you are probably more than interested. I recall one recent case that we had. A patient, nineteen years old, came in only because her abdomen had enlarged so that she could not get her dresses buttoned any longer. Physical examination revealed a very large tumor. In the course of our diagnostic studies, an intravenous pyelogram was taken which revealed a large adrenal tumor pushing the kidney down into a horizontal position but still revealing a functioning kidney. In order to remove the tumor, together with the kidney, a "U"-shaped incision was necessary extending all the way from the costo-vertebral angle posteriorly around the lower ribs to the xiphoid process anteriorly. Postoperatively, the patient got along quite well for six months, when she developed some pelvic metastases which seemed to arise from the region of the ovaries. A panhysterectomy was done, removing also a considrable amount of pelvic peritoneum. On the occasion of each operative procedure, she seemed to respond quite well to x-ray therapy. Subsequent to the second operative procedure, she was again all right for a period of six months when she began to develop pains in her lower extremities which ultimately progressed to a partial paralysis due to metastases in the dorsal region of her spine and external to the dura. A laminectomy

(Continued on Page 268)



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*Gutner, L. B.; Gould, W. J., and Batterman, R. D.: Action of Dimenhydrinate (Dramamine) and Other Drugs on Vestibular Function, Arch. Otolaryng. *53*:308 (March) 1951.

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

◆ Reports and Announcements ◆

AERO MEDICAL ASSOCIATION

The twenty-third annual meeting of the Aero Medical Association was held at the Statler Hotel, Washington, D. C., March 17 to 19. Attending the meeting for the first time were aviation medicine representatives from twenty other nations.

A full program of scientific papers, exhibits and demonstrations showed many of the latest trends and developments in the field of aviation medicine. In addition, the space medicine group of the organization presented a series of discussions in their specialized field of research.

AMERICAN COLLEGE OF ALLERGISTS

The eighth annual meeting of The American College of Allergists will be held this year at the William Penn Hotel in Pittsburgh, Pennsylvania, on April 7, 8 and 9. In addition to twenty addresses on general topics and special scientific investigations, there will be round tables at luncheons and sectional meetings devoted exclusively to the psychosomatic aspects of the allergic patient, allergy in infants and children, allergic manifestations in the skin, as well as those seen in the eye, ear, nose and throat.

An innovation for meetings of allergists will be a session devoted to the problems of the allergic patient as met in modern industrial medicine. All reputable physicians are welcome to attend. For more particulars, write The American College of Allergists, LaSalle Medical Building, Minneapolis 2, Minnesota.

GRADUATE COURSE IN ALLERGY

On April 4, 5 and 6 at Pittsburgh, Pennsylvania, The American College of Allergists will offer an instruction course in allergy. Some sixty well-known authorities in the field will give addresses, clinical talks and demonstrations. The program has been designed for physicians in other fields of practice, especially those in general practice, so that they may learn to recognize and manage the allergic component in the complaints of their patients.

For further information and a copy of the program, write the office of The American College of Allergists, LaSalle Medical Building, Minneapolis 2, Minnesota.

MANUSCRIPT EDITING SERVICE

To improve medical journalism, the American Medical Writers' Association has recently established the first Manuscript Editing Service to be conducted by a medical association in the United States. For a small fee, the Association will edit and criticize medical manuscripts (up to 5,000 words). Its aim is to help authors carry out the dictum of Sydney Smith: "The writer does the most who gives his reader the most knowledge and takes from him the least time." The Association is a nonprofit organization with no salaried officers. Its membership includes a large group of well-known medical editors and writers. Principal purpose of the group is "to help maintain and advance high standards of medical literature."

Further details of the new Manuscript Editing Service may be obtained from the Secretary, Harold Swanberg, M.D., 209-224 W.C.U. Building, Quincy, Illinois.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club in Saint Paul on March 11. The scientific program included the following presentations:

"Neurophysiologic Testing in Parkinsonism," inaugural thesis by Dr. Andrew J. Leemhuis, Minneapolis.

"A Psychosomatic Study of a Case of Acute Intermittent Porphyria," by Dr. C. Knight Aldrich and Dr. John S. Visher, both of Minneapolis.

"An Electroshock Fatality in an Acute Excitement Complicated by Bronchiectasis," by Dr. B. C. Schiele, Minneapolis.

MINNESOTA TUBERCULOSIS AND HEALTH ASSOCIATION

The name of the Minnesota Public Health Association, the state Christmas Seal organization, has been changed to the Minnesota Tuberculosis and Health Association. Two reasons were given for the inclusion of the word "tuberculosis" in the name of the organization's name: (1) there has been some confusion because of the previous name's similarity to that of the Minnesota Department of Health and other health agencies, and (2) Christmas Seals, the sole means of support of the association, are sold primarily to finance the fight against tuberculosis.

The previous name, Minnesota Public Health Association, was taken in 1914 because the group's leaders wanted to emphasize the importance of an all-out health program to defeat tuberculosis.

County associations affiliated with the state organization are also changing their names from county public health associations to county tuberculosis and health associations.

MINNESOTA WELFARE CONFERENCE

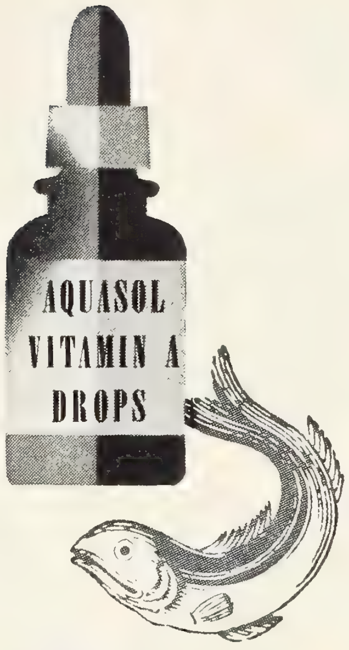
The Minnesota Welfare Conference will be held at the Hotel Saint Paul, Saint Paul, March 31 to April 2.

Several sessions during the annual meeting will be devoted to health and medical discussions. The following items will appear on the program:

"Rehabilitation: The Community's Responsibility" by Mr. Eugene Taylor, assistant professor of the Depart-

(Continued on Page 250)

aqueous vitamin A



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It is suggested in patients with dysfunctions of the liver, pancreas, and biliary tract which interfere with utilization of fats; in celiac disease and certain other diarrheal states. [1,4,8]

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1. Lewis, J. M., et al.: Jl. Pediatrics 31:496, 1947
2. Kramer, B., et al.: Am. Jl. Dis. Child. 73:543, 1947
3. Halpern, G. R., et al.: Science 106:40, 1947
4. Nutrition Reviews 5:286, 1947
5. Clifford, S. H. and Weller, K. H.: Pediatrics 1:505, 1948
6. Popper, H., et al.: Gastroenterology 10:987, 1948
7. Davidson, D. M., et al.: Jl. Invest. Derm. 12:221, 1949
8. Nutrition Reviews 6:248, 1948

MINNESOTA WELFARE CONFERENCE

(Continued from Page 248)

ment of Physical Medicine and Rehabilitation, New York University College of Medicine. March 31, 2:15 to 3:15 p.m.

"Rehabilitation of the Aging" by Dr. Murray B. Ferderber, Department of Physical Medicine, University of Pittsburgh. April 2, 10:15 to 11:30 a.m.

"Hospital Services in Rehabilitation in Minnesota" by Dr. Robert Barr and Dr. Helen Knudson, Minnesota Department of Health. April 2, 3:30 to 5:00 p.m.

Members of the Minnesota State Medical Association are invited to attend these sessions.

CONTINUATION COURSES

Obstetrics.—A course in obstetrics for specialists in that field will be held at the Center for Continuation Study at the University of Minnesota on April 17 to 19. The visiting faculty member for the course will be Dr. S. M. R. Reynolds, physiologist, Department of Embryology, Carnegie Institution of Washington, Baltimore, and the remainder of the faculty for the course will be announced at a later date. Dr. Reynolds will deliver the annual Duluth Clinic Lecture on the subject, "Newer Concepts of Fetal Circulation," on April 18.

Pediatrics.—The University of Minnesota will present a course in pediatrics on April 21 to 23. The course will be presented at the Center for Continuation Study and is intended primarily for physicians specializing in pediatrics. Emphasis will be placed on infectious diseases as they occur in pediatric practice. Dr. John M. Adams, professor, Department of Pediatrics, University of California, Los Angeles, formerly a member of the Department of Pediatrics at the University of Minnesota, will be the visiting faculty member for the course. Dr. Adams will also deliver the annual Clarence M. Jackson Lecture sponsored by the Phi Beta Pi medical fraternity on the subject, "Respiratory Diseases—Changing Concepts."

Eye, Ear, Nose and Throat.—The University of Minnesota will present a continuation course in eye, ear, nose, and throat problems at the Center for Continuation Study from May 12 to 14. The course is intended for physicians engaged in general practice. One day will be devoted to the consideration of ocular problems, and the remainder of the time will be devoted to those ear, nose, and throat conditions which are most frequently seen in general practice.

Dr. Erling W. Hansen, clinical professor and director, Division of Ophthalmology, and Dr. George M. Tangen, clinical assistant professor, Division of Otolaryngology, will join in the direction of the course, and the remainder of the faculty will include clinical and full-time members of the staff of the University of Minnesota Hospitals.

Allergy and Hematology.—The University of Minnesota will present a course in allergy and hematology at the Center for Continuation Study on May 15 to 17. The course is intended primarily for physicians engaged in general practice but will be of interest to internists and pediatricians as well. One day will be devoted to the consideration of hematologic problems, and the remainder of the session will deal with diagnosis and management of allergic disorders.

Dr. Will Cook Spain, an outstanding authority in the field of allergy, will be the visiting faculty member for the course, while the remainder of the faculty will include clinical and full-time members of the staff of the University of Minnesota Medical School and the Mayo Foundation. The course will be presented under the direction of Dr. C. J. Watson, professor and director, Department of Medicine, at the University of Minnesota Medical School.

HENNEPIN COUNTY SOCIETY

Dr. Claude J. Ehrenberg, Minneapolis, will be installed as president of the Hennepin County Medical Society next October, succeeding Dr. William R. Jones.

Other officers elected at a meeting of the society in Minneapolis on February 4 include Dr. Horatio B. Sweetser, Jr., first vice president; Dr. Dale H. Correa, second vice president; Dr. L. Haynes Fowler and Dr. Robert E. Priest, members of the board of directors; Dr. Thomas J. Kinsella and Dr. Reuben A. Johnson, board of censors; Dr. Lawrence R. Boies and Dr. Thomas Lowry, board of ethics; Dr. James A. Blake and Dr. Frank R. Hirschfield, board of trustees; Dr. Ralph H. Creighton, Dr. Willard D. White and Dr. Elmer T. Ceder, delegates to the Minnesota State Medical Association.

MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 243)

one could scarcely advocate gastric resection on a well person in order to prove that his healed gastric ulcer was definitely benign. Furthermore, as Dr. Wangensteen has indicated, gross and histologic studies of a specimen may be in error and therefore in some cases a clinical evaluation of the benignancy or malignancy of an ulcer may be more accurate.

I wish to re-emphasize that this study was not done to determine how gastric ulcers should be treated but merely to determine the incidence of malignancy in the garden variety of gastric ulcer seen in private practice. This is less than 2 per cent. In order to make this study more valuable we will continue to follow these same patients for another ten years as well as to add new cases to the group.

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

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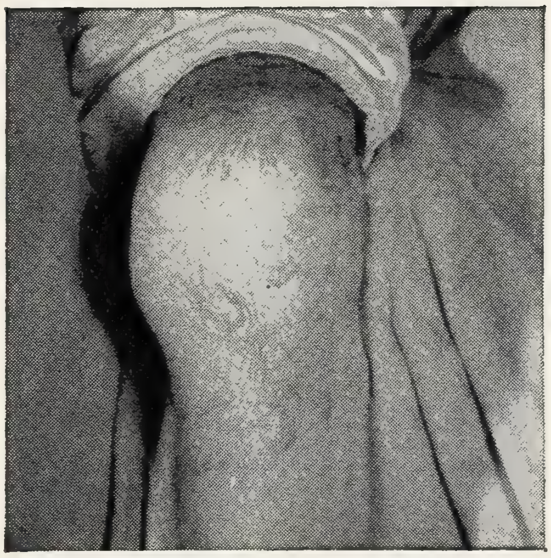
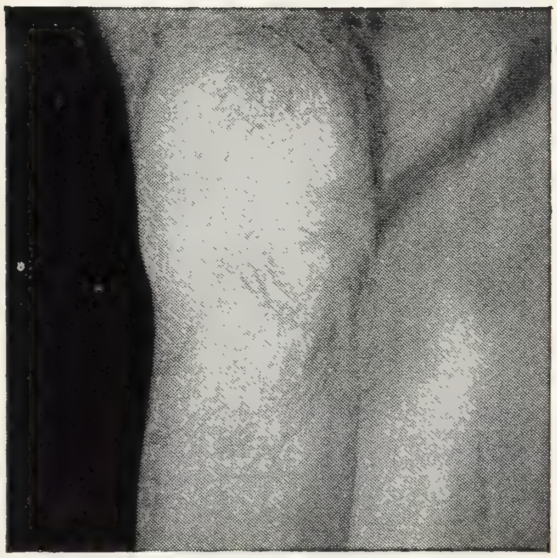


BEFORE TREATMENT:
Periarticular swelling and hydrarthrosis



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Ward, L. E., Slocumb, C. H., Polley, H. F., Lowman, E. W., and Hench, P. S.: *Proc. Staff Mtgs., Mayo Clinic* **26:** 361, September 26, 1951.

Literature on Request

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Woman's Auxiliary

CHAIRMAN REPORTS ON PUBLIC RELATIONS PROGRAM

Mrs. L. J. Leonard, Minneapolis

The recruitment of nurses occupies position number one on the auxiliary's public relations program this year. At the AMA Public Relations Conference held in Los Angeles last December, which was attended by well over five hundred, $10,000 was subscribed to the nurse recruitment program. The national auxiliary contributed $500 to the American Nurses Association last year to aid in the development of their program and over 300 scholarships and loans to student nurses have been given thus far.

Most of the county auxiliaries are aware of the great need for nurses and are making every effort to acquaint young women students in their various communities with the requirements and advantages of the profession, also offering whatever aid they can. It has been suggested that the auxiliary go one step farther and urge women's organizations, such as the PEO, Woman's club or other service organizations to sponsor student nurses.

A new training program will soon come from national headquarters which will equip nurses to make a better approach to people who come to the doctor's office. It is urged that this be given fullest support.

Also, if it would come under auxiliary jurisdiction, try to get a good representative nurse to attend the National Nurses Convention in Atlantic City in June.

It is vital that members urge their husbands to contribute to medical schools. Their need is great and if aid is not given, they may be forced to accept federal grants. Legislation is constantly being advocated in this direction. Auxiliaries all over the country are beginning to contribute. "Check your budget for a little surplus," says the national public relations chairman, Mrs. Theodore Heinz. "We would like $100 from each state auxiliary."

Remember that socialized medicine is not a dead issue. To quote Dr. Louis Bauer, AMA's president-elect:

> "This country is fast moving down the road marked Socialism. 1952, a presidential election year, offers physicians and wives an opportunity to whip socialism at the polls. Every physician, as a citizen, should resolve to become actively engaged in this campaign. Socialism can easily come to this country without a vote; it can come by default."

National statistics show that less than fifty per cent of qualified voters went to the polls and the medical profession had the shameful record of only thirty-six per cent. At the state Board meeting in January, at the Curtis hotel, Minneapolis, a chairman reported that through efforts of their auxiliary, the vote of the medical profession was brought up to eighty-three per cent, which shows what can be accomplished if the effort is made.

The American Medical Association is constantly providing new available literature. "A Doctor for You" is a recent one and another dealing with the Code of Ethics which will be called "The Code Your Doctor Lives By," will be available soon. It has been suggested that each auxiliary appoint a distribution chairman to superintend the delivery of these pamphlets and also reprints of magazine articles which are available, to the libraries in her town, to the hospital waiting rooms, school teachers, ministers and officers of women's groups. They are wonderful materials to hand out at medical society booths at county fairs. Now is the time to plan in advance to make full use of these excellent PR aids. Public opinion moulds slowly but surely. Be a vigilant worker.

A gift suggestion for a physician husband: One of AMA's new plaques for use in doctor's offices. It is designed to encourage patients to talk freely with their physician in order that misunderstandings about services or fees may be avoided. The plaque costs $1 postpaid.

COUNTY AUXILIARY HOLDS ANNUAL NURSE TEA

Members of the Mower County Medical auxiliary recently attended the second annual tea for sophomore, junior and senior girls interested in nursing or its allied branches. The committee in charge of arrangements consisted of Mrs. C. L. Sheedy, Mrs. P. A. Lommen, Mrs. Edward C. Sargent and Mrs. T. M. Seery.

Signing blood donors, arranging appointments and helping at the blood donor station have also become auxiliary projects.

STATE COMMITTEE CONTINUES WORK

Mrs. L. G. Culver, Saint Paul

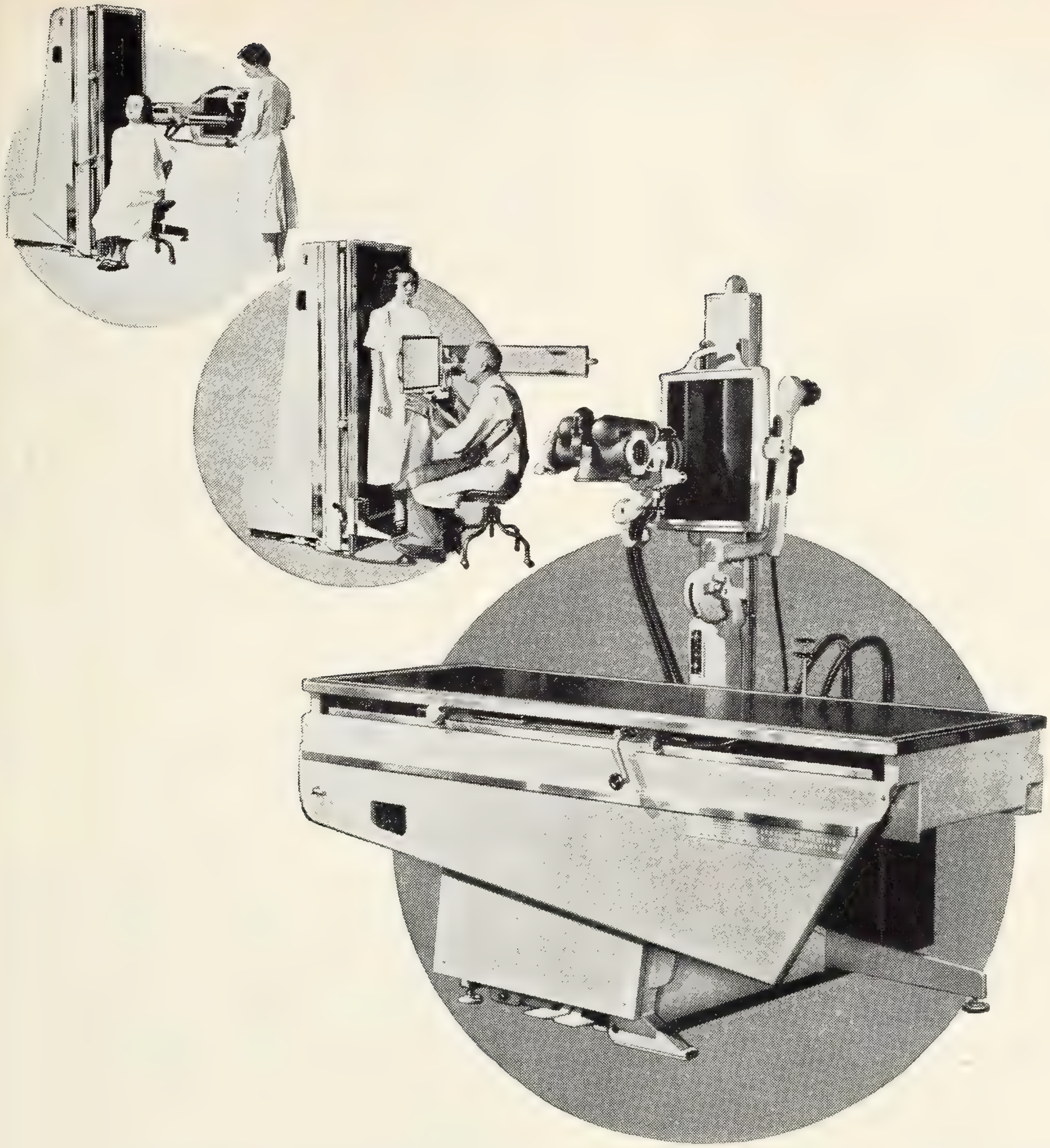
The Committee on Medical and Surgical Relief of the Woman's Auxiliary to the Minnesota State Medical Association is continuing in the collection, from doctors' offices, of surplus medical and surgical supplies. A letter has been sent to county committee chairmen, encouraging continuation of the work on a county basis.

Mr. Pedro Velasco, 3009 Ewing Avenue North, Robbinsdale, Minnesota, is still anxious to receive supplies so that as soon as two tons of supplies have been accumulated, he will be able to ship them to the Philippines.

In 1950, 1,799,800 Americans were injured in traffic accidents.

* * *

Speeding on U. S. streets and highways last year killed 13,300 men, women, and children.



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In Memoriam

NORBERT P. BLOCHOWIAK

Dr. N. P. Blochowiak, a young physician of Rushford, Minnesota, tragically met death on January 20, 1952, when his car slid into a freight engine. He was only twenty-nine years of age and had come to Rushford just two and a half years ago, after serving an internship at Ancker Hospital in Saint Paul.

Dr. Blochowiak was born June 29, 1922, at Pulaski, Wisconsin. He obtained his medical degree from the University of Minnesota Medical School in 1948, his study having been interrupted by two years in the army.

He had become an active worker in community affairs in the short time he had lived at Rushford and belonged to the Commercial Club, the Lions Club, the American Legion. He was a member of the Winona County Medical Society, the Minnesota State Medical Association and the American Medical Association. Lately, he had taken a leading part as chairman of the investigating committee for Rushford's new Youth Center.

On June 15, 1946, he married Beverly Bornitz of Lamoille. He leaves his wife and two small children, Kenneth Robert and Patricia Ann. His mother, seven brothers and two sisters also survive him.

EDWARD C. BOXELL

Dr. Edward C. Boxell, Saint Paul, died January 13, 1952, at the age of eighty-eight.

Dr. Boxell was a member of the Class of 1894 at the University of Minnesota medical school. He practiced for a short time at Annandale and Saint Paul Park before moving to Saint Paul.

Dr. Boxell is survived by his wife, Mary; and a son Allan, both of Saint Paul.

HANS JOHNSON

Dr. Hans Johnson of Kerkhoven, Minnesota, died January 13, 1952 in the Abbott Hospital, Minneapolis, following injuries received December 17, 1951, in an automobile accident near Spirit Lake, Iowa. He was seventy-one years of age. His wife, Estelle, seriously injured in the crash, is recovering at her home.

Dr. Johnson was born January 14, 1881 at Royalton, Minnesota. He graduated from the University of Minnesota medical school in 1904. He practiced at Middle River, Minnesota, and at Murdock, Minnesota, before he located at Kerkhoven in 1907. He was honored last summer by his fellow citizens with a "Dr. Johnson Appreciation Day."

He took an active interest in local affairs, having been mayor of Kerkhoven in 1917-18 and again in 1933-35. He served on the school board from 1918 until his death and was president of the board from 1927 on. He also served as health officer and as physician on the Swift County Selective Service Board.

Dr. Johnson married Estelle Quam of New London, Minnesota, June 6, 1907. She and four children, Dr. John W. Johnson of St. Louis Park, Minnesota, Lester of Carmel, Indiana, H. Clinton of Huntington Woods, Michigan, and Mrs. Merle (Dagmar) Gribble of Honolulu survive him. One son, Gordon, was killed in action at Duren, Germany, in 1944.

OSCAR O. BURTON

Dr. Oscar O. Burton, formerly of Albert Lea, died at his home in Brattleboro, Vermont, December 31, 1951.

Oscar Burton was born in St. Albans, New York, and came to Alden, Minnesota, with his parents about 1876.

Dr. Burton married Alice Hibbs and practiced in Albert Lea for some ten years before moving to Florida for his health. At one time, he was secretary of the Freeborn County Medical Society.

From Florida, Dr. Burton moved to Wellesley, Massachusetts, and then to Westminster, Vermont. For the last few years, he has been health officer and town physician for the city of Brattleboro.

M. W. KEMP

Dr. M. W. Kemp, former superintendent of the State Hospital at Moose Lake, Minnesota, died at his home in Madison, Indiana, February 6, 1952, of a heart attack. He was fifty-six years of age.

Dr. Kemp spent eight years as superintendent of the State Hospital in Moose Lake from 1938 to 1946. Prior to coming to Moose Lake, he was assistant superintendent of the Fergus Falls state hospital from April, 1927, to October, 1935, when he resigned to accept the superintendency of the Anoka state hospital. He left Moose Lake in 1946 to become superintendent of the hospital at Madison, Indiana.

Dr. Kemp is survived by his wife and one daughter, aged fourteen.

JOHN M. ORT

Dr. John M. Ort, former member of the staff of the Mayo Clinic, died on August 25, 1951, of a cerebrovascular accident.

John M. Ort was born May 31, 1896, at Home City, Ohio. He received the degree of M.S. in 1919, and Ph.D. in 1924 from Ohio State University, Columbus. He was instructor at Cass School of Applied Science in Cleveland from 1919 to 1922, was assistant in physical chemistry at Ohio State University from 1922 to 1923, and a Du Pont fellow in chemistry at Ohio State University in 1923-1924. He came to the Clinic as first

(Continued on Page 256)

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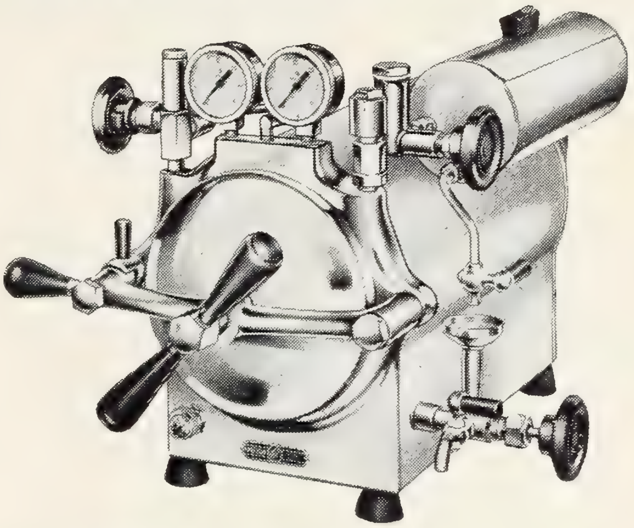

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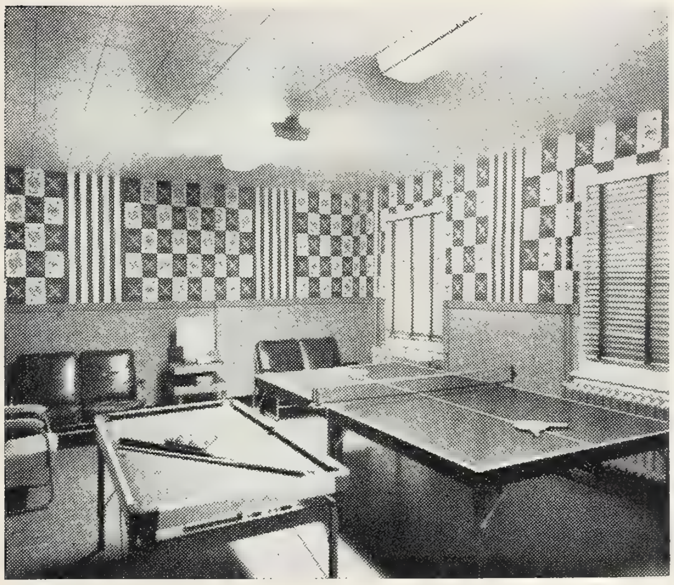

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Among the several types, functional headaches present the greatest problem because of their obscure etiology and recurrent nature.

Among these are:

Migraine (both classical and variant forms)
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Psychogenic headache
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Wolff and his co-workers established that the pain of these headches is due to disturbance of the tonus of cranial blood vessels — hence the term *vascular headaches.*

The craniovascular changes associated with the several phases of the typical migraine attack are:

Vasoconstriction — to which the visual prodromata are attributable. It is possible to abort the attack during this phase in all but a few cases. (See treatment below.)

Vasodilatation — as the vessels lose their tone, exaggerated pulsations set in, resulting in the throbbing pain which characterizes vascular headache. Treatment for the attack is still effective during this phase. (See below.)

Vessel Edema — if the vasodilation continues for too long, vessel walls become edematous; this changes the character of the pain to a steady, intense aching. The attack can now no longer be checked, even with maximum dosage of specific drugs. *Moreover, sustained headache often induces reflex neck muscle tension, a source of residual pain.*

Therapy: 1. Reduce the frequency of attacks — psychotherapy and regulation of living habits to avoid fatigue and nervous tension.

2. Relieve the acute attack — of the numerous drugs which have been tried, ergotamine and its derivative preparations have proved most effective. The newest product is oral tablets of Cafergot®, N. N. R. (ergotamine with caffeine 'Sandoz'). When dosage is adjusted to the needs of the individual, Cafergot will give good relief in 85% of cases. It enables a greater number of patients to benefit from early administration since the oral route simplifies treatment as compared to parenteral therapy.

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2. If attack continues, take one additional tablet every ½ hour until attack is terminated *(max. 6 tabs. per attack).*

Many migraine patients delay taking medication until the attack is at its height. Explicit dosage instructions may be forgotten unless the patient comes to realize their importance. Therefore, to encourage adherence to correct procedure, we have prepared pads outlining detailed dosage instructions. Supplies of these INSTRUCTION SLIPS will gladly be sent upon request.

GENERAL REFERENCES: DeJong, R.: Chicago M. Soc. Bull *54:* 106, 1951. Friedman, A.: Modern Headache Therapy, St. Louis, C. V. Mosby Co., 1951. Wolff, H.: Headache and Other Head Pain, N. Y., Oxford Univ. Press, 1948.

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JOHN M. ORT

(Continued from Page 254)

assistant in the Division of Physics on July 22, 1924. He was appointed assistant professor of biophysics, the Mayo Foundation, July 1, 1925.

Dr. Ort left the Clinic and Foundation in September, 1932, at which time he became engaged in physical chemical research for Swift and Company, Chicago, until August 15, 1933. Since that time his work has included physical chemical research for E. R. Squibb and Sons, Brooklyn, New York, and the directorship of research at the Carroll Dunham Smith Pharmacal Company, New Brunswick, New Jersey.

Dr. Ort was a member of the American Chemical Society, the American Society of Biological Chemists, the American Institute of Chemists, the American Association for the Advancement of Science and Sigma Xi.

MALCOLM C. PFUNDER

Dr. Malcolm C. Pfunder of Minneapolis died on January 23, 1952, at the age of sixty-four.

Born at Two Creeks, Wisconsin, January 19, 1888, Dr. Pfunder received the degrees of B.S. and B.A. at Ripon College and an M.D. at Rush Medical College in 1919. He interned at Miles City Hospital, Miles City, Montana, and at Worrall Hospital, Rochester, Minnesota, after which he took postgraduate training in Ophthalmology and Otolaryngology for eighteen months at the Mayo Foundation.

After practicing from 1922 to 1929 at Miles City, Dr. Pfunder moved to Minneapolis where he practiced his specialty. He had the appointment of Assistant Clinical Professor of Ophthalmology at the University of Minnesota Medical School and was chief of the Eye, Ear, Nose and Throat service at the Minneapolis General Hospital. He was a member of the American College of Surgeons, the Pan American Association of Ophthalmology, the Hennepin County Medical Society of which he was a past president, the Minnesota Academy of Ophthalmology and Otolaryngology, the Minnesota State Medical Association and the American Medical Association.

Dr. Pfunder held memberships in the Minneapolis Athletic Club, the National Skeet Shooting Association, the Big Game Club, the Zuhrah Temple of the Shrine, the Scottish Rite Lynnhurst Masonic Lodge, Alpha Omega Alpha and Phi Chi. He was a member of Knox Presbyterian Church.

Surviving are his wife, Mrs. Edna Gilkey Pfunder; a daughter, Mrs. Curtis H. Carlsen, and a son, Malcolm G. Pfunder.

GEORGE E. RUNNERSTROM

Dr. George E. Runnerstrom, former Minneapolis physician, died January 26, 1952, in Engelwood, California. A stroke was given as the cause of death. Dr. Runnerstrom had been in ill health for some time.

George Runnerstrom was born in Otisco township, Minnesota, in 1892 and attended Waseca schools. He obtained his M.D. degree at the University of Minnesota.

He was married in 1918 to Mata Mills of Minneapolis, who survives.

Dr. Runnerstrom served on the staff at the Fort Snelling veterans hospital for twenty-two years, until 1939 when he went to Washington, D. C., where he continued in veterans work until 1945. At that time, in failing health, he retired from medical practice and moved to California.

In addition to his widow, he leaves one son Warren, at home, and one daughter Ruth, now married and living in St. Louis, Missouri.

CARL B. TEISBERG

Dr. Carl B. Teisberg, examining physician for the Minnesota Athletic commission, died Saturday, February 9, 1952, at his home in Saint Paul. He was seventy-two years old.

Practicing physician since 1910 in Saint Paul, Dr. Teisberg was a graduate of Luther College at Decorah, Iowa, and the University of Minnesota medical school. He practiced in Pine City prior to moving to Saint Paul.

Survivors include the widow, Mary V.; a daughter, two sons, four sisters and three brothers.

T. J. TRUTNA

Dr. T. J. Trutna, practicing physician in Silver Lake, Minnesota, since 1906, died at his home Friday morning, February 8, 1952. He was seventy-three years of age.

Dr. Trutna had practiced medicine in Silver Lake more than forty-five years, and had been a resident of that town since 1892 when he came with his family to Minnesota from Wahoo, Nebraska. He was a veteran of World War I, and organizer and first commander of American Legion Post No. 142 in Silver Lake.

Members of the post served as honor guards at the funeral service and sounded taps at the graveside service.

Dr. Trutna studied medicine at the University of Minnesota and came to Silver Lake in 1906 after one year as an intern at Asbury Hospital in Minneapolis.

Dr. and Mrs. Trutna were married January 1, 1919, while the doctor was home on furlough.

Survivors include his wife, Eleanor; two sons, Raleigh of Hastings, Minnesota, and Roger of Saint Paul; and two brothers, Anthony H., Mohall, North Dakota, and Frank, West Union, Minnesota.

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✦ Of General Interest ✦

The **Variety Club Heart Hospital** at the University of Minnesota, with a bed capacity of forty for children and thirty-eight for adults, has about twenty vacant beds for children. The Heart Hospital receives patients from Minnesota, North Dakota, South Dakota and the western border of Wisconsin. Admission inquiries should be addressed to the Director of Admissions, University Hospitals, Minneapolis, Minnesota.

* * *

Dr. Winston R. Lindberg is now associated with his father, Dr. A. C. Lindberg, at 600 Physicians and Surgeons Building, Minneapolis, in the practice of ophthalmology and ophthalmic surgery. The younger Dr. Lindberg recently completed a two-year residency at John Gaston Hospital, Memphis, Tennessee.

* * *

Dr. W. C. Stillwell, of the Mankato Clinic, Mankato, was among those who attended the nineteenth annual meeting of the American Academy of Orthopedic Surgeons at the Palmer House, Chicago, from January 26 through 31.

* * *

Dr. Ralph F. Mach, formerly of Rush City, moved to Pine City early in February. A graduate of the University of Minnesota Medical School, he served his internship at Mercy Hospital, Loyola University Clinic, Chicago. He began practice at Foley in 1947, then moved to Rush City in 1948 and was associated in practice with Dr. J. E. Halpern for four years.

* * *

Word was received early in February that **Dr. David M. Berkman** has retired from the staff of the Mayo Clinic, Rochester, and is now living at Oronoco.

* * *

The **Minnesota Tuberculosis and Health Association** (formerly called the Minnesota Public Health Association) has established the H. Longstreet Taylor grant of $7,500, to be made annually to the University of Minnesota for tuberculosis research. It will be administered by Dr. J. Arthur Myers,, professor of preventive medicine and public health at the University. Dr. H. Longstreet Taylor was largely responsible for the initiation of the campaign for the prevention of tuberculosis in Minnesota.

* * *

After practicing internal medicine at Saint Paul for the past five years, **Dr. John C. Hays** has moved to Colorado Springs, Colorado, where he is now associated with the Colorado Springs Medical Center.

* * *

Mr. W. B. Schoenbohm has been selected as director of the **Minnesota Society for Crippled Children and Adults.** Mr. Schoenbohm was formerly director of the hospital for severely handicapped children at the University of Iowa and president of the Iowa Society for Crippled Children and Adults. He succeeds Mr. Robert Booth as director of the Minnesota society.

* * *

More than 150 guests attended an open house in Winona on February 5 at which **Dr. and Mrs. W. F. C. Heise** celebrated their fiftieth wedding anniversary. Following the open house, a family buffet dinner continued the golden wedding anniversary celebration.

Dr. Heise has practiced medicine at Winona since his graduation from Rush Medical College. He and his five sons, all physicians, founded the Heise Clinic at Winona.

* * *

Dr. Ezra V. Bridge, superintendent of the Cannon Falls Sanatorium, spoke on the "Modern Treatment of Tuberculosis" at a joint meeting of several nurses groups at St. Lucas Hospital, Faribault, on February 11.

* * *

Dr. Abbott Skinner and **Dr. Charles Eginton** have become associated in the practice of surgery and have established offices at 666 Lowry Medical Arts Building, Saint Paul. Dr. Skinner received his medical training at Harvard Medical School and took his postgraduate study at Ancker Hospital, Saint Paul. Dr. Eginton, a graduate of the University of Minnesota Medical School, did postgraduate work as a fellow in surgery at the Mayo Foundation, Rochester. Both physicians have M.S. (Surgery) degrees and are diplomates of the American Board of Surgery.

* * *

Mr. G. Ray Higgins, formerly director of student unions at the University of Minnesota, has been appointed executive secretary of the **Minnesota Heart Association.** He succeeds Mr. Fred L. Wheeler, former executive secretary.

* * *

Dr. F. W. Behmler, Morris, was elected president of the Minnesota State Board of Health at its meeting in Minneapolis on February 5. Dr. Behmler has been a member of the board since 1940 and was recently reappointed for another three-year term. He served as vice president of the board for several years. He has practiced medicine at Morris for fifteen years.

* * *

Dr. W. O. Finkelnburg, Winona, discussed the human heart and cardiac problems of the middle-aged at a businessmen's meeting in Winona on February 6. The showing of motion pictures and the distribution of literature on the subject were included at the meeting.

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Dr. John W. Gridley has joined the staff of a clinic at Granite Falls on a temporary basis which may become permanent. He previously practiced at Glencoe for six years. For the six months before his move to Granite Falls, he practiced at Watertown, South Dakota.

* * *

Dr. S. A. Slater, superintendent of Southwestern Minnesota Sanatorium, with the aid of local physicians, officiated at the Mantoux testing of pupils in the Worthington, Minnesota, schools on February 15.

* * *

Dr. Edwin Knight, of Swanville, presented a discussion of rheumatic fever followed by a period of questioning at a meeting of the Northwest Nursing Auxiliary at Little Falls in January.

* * *

Dr. C. A. Owen, member of the Department of Clinical Pathology at the Mayo Clinic, spoke on "Science of Tomorrow" before a meeting of the Southern Minnesota Science Teachers League held as a "science fair" at Mankato State Teachers College, February 23.

* * *

Tribute was paid to the untiring service of the late **Dr. H. C. Doms,** as a physician and surgeon, as the person who helped to give the community a modern

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hospital and as a civic leader, at special ceremonies held in January. The occasion was the presentation of a framed picture of Dr. Doms to the Murray County Memorial Hospital. The picture was presented by the Slayton Civic and Commerce Association, of which Dr. Doms was an organizer and past president, and the Murray County State Bank, of which he was a director for a number of years.

* * *

Dr. Viktor Wilson, of the Minnesota State Health Department, discussed activities of the Health Department in general with a group of physicians and medical students taking graduate work at the University of Minnesota when they made a tour of health units and a hospital in Rochester early in February. Countries represented in the group were Turkey, Formosa, Thailand, Mexico, Ceylon, and Germany. Local health and sanitation techniques of the Rochester-Olmsted County health unit, the health center, St. Mary's Hospital, and the new sewage treatment plant in Rochester were objects of special interest to the students who will carry the knowledge thus gained back to their own countries in setting up similar health units.

* * *

Dr. Walter M. Boothby, of Albuquerque, New Mexico, formerly of Rochester, Minnesota, was awarded the order of Commander of the North Star by the King of Sweden the latter part of January. The ceremony of presentation was made by Gunnar Dryselius, Swedish Consul at Houston, Texas, at a reception held in the home of Dr. and Mrs. William R. Lovelace, II, also former Rochester residents. Dr. and Mrs. Boothby have lived in Albuquerque since last November, when Dr. Boothby became a member of the Lovelace Foundation for Medical Education and Research at the invitation of Dr. Lovelace, former pupil of Dr. Boothy.

* * *

Dr. M. G. Flom, of Zumbrota, has been appointed to the local board of health for the coming year.

* * *

CORRECTION

Two errors, which occurred in printing the list of Physicians Licensed in 1951 in the December, 1951, issue of MINNESOTA MEDICINE have just been called to our attention.

On Page 1192, under the subhead "Reciprocity Candidates," the name immediately following that of Buchanan, Gerald S. should be spelled as follows: ELLERTSON, Jr., Leonard Melvin.

On Page 1196, under the subhead "National Board Candidates," the name immediately following that of Lovelace, Jr., Daniel Dudley, should read: MacSWEEN, George Burton William (in place of Westby, Norval Martin).

The errors occurred in the printing shop when final corrections were being made on the page proofs and were not caught in proof reading. Our apologies to the gentlemen involved and to the Minnesota State Board of Medical Examiners!

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Dr. Harry W. Sturmer, of Minneapolis, first member of the organized naval reserve in Minneapolis to be called to active duty after the Korean outbreak, has been placed on the Navy's inactive list and has resumed practice with the Nicollet Clinic and the Veterans Administration at Fort Snelling. Dr. Sturmer, as a Navy lieutenant, was second in charge of orthopedic surgery at Great Lakes Naval Training Station. He is a veteran of World War II.

* * *

"The Human Heart" was the subject of an address by **Dr. Paul Reed** before a meeting of the Virginia, Minnesota, Kiwanis Club on February 5.

* * *

Dr. James W. Kernohan, head of the section on pathologic anatomy at the Mayo Clinic, was elected to the Board of Directors of the Mayo Association at the Association's annual meeting in February. Dr. Kernohan succeeds Dr. J. deJ. Pemberton, who retired from the Board.

* * *

Dr. James H. DeWeerd, a member of the Mayo Clinic's section on urology, has been awarded the J. William White scholarship for foreign travel and study in surgery. Dr. and Mrs. DeWeerd will travel in Europe, on the scholarship, during June and July this year. The scholarship is awarded from time to time to outstanding fellows of the Mayo Foundation who have gained an advanced degree and are recommended by the Foundation's medical graduate committee. Dr. DeWeerd received his M.D. degree from the University of Michigan in 1941 and joined the Mayo Foundation as a fellow in surgery in 1946. He became a first assistant in 1948.

* * *

Dr. R. R. Cranmer, vice president of Minnesota Medical Service, Inc., was elected as a commissioner to the Blue Shield Commission at the conference of the Tenth District Blue Cross-Blue Shield representatives held in Iowa in January. Elected a commissioner to the Blue Cross Commission was Arthur M. Calvin, executive director of the Minnesota Hospital Service Association.

* * *

Dr. Shelley Chou, fellow in neurosurgery at the University of Minnesota, discussed his work with radioactive dyes in locating brain tumors at a meeting of Twin Cities medical technologists in Northwestern Hospital, Minneapolis, February 14.

* * *

Highest rating in the United States in national board examinations was the accolade given to graduates of Minneapolis General Hospital's school of nurse anesthetists of the class of 1951. This message was received by Kenneth Holmquist, superintendent of the hospital, from the national organization of nurse anesthetists giving the examination. The General Hospital school is headed by Dr. Christine Furman.

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Dr. V. A. Schulberg, practitioner in Arlington, Minnesota, the past five years, has moved to Newport, California, where with **Dr. Norman Carlson** of Watertown, Minnesota, and **Dr. Arnold Naegeli** of Saint Paul, he will become a member of a clinic group.

* * *

Dr. D. M. Siperstein, of Minneapolis, spoke on "Miracle Drugs" at a meeting of the Cerebral Palsy Foundation, Inc., held in Minneapolis on February 27.

* * *

Dr. Helen Fukushima, of Tokyo, who is engaged in medical research work at Miller Hospital, Saint Paul, recently addressed an audience of Saint Paul women on the subject "Missionary Work in Japan."

* * *

Dr. Milton W. Plucker, of Omaha, Nebraska, has informed residents of Storden, Minnesota, that he expects to establish a medical practice there in early July. **Dr. Robert W. Sawtell,** a schoolmate of Dr. Plucker, is planning to establish a practice in Jeffers, Minnesota, at about the same time.

* * *

Dr. R. L. Parker, of Rochester, participated in a continuation course on therapy of cardiovascular diseases at the Center for Continuation Study, University of Minnesota, in Minneapolis in February. He presented a paper entitled "The Management of Acute Coronary Thrombosis."

* * *

Dr. J. Arnold Bargen and **Dr. John M. Waugh,** of the Mayo Clinic, presented papers before the Minneapolis Surgical Society, at its February meeting, entitled, respectively, "Conservative or Medical Management of Diverticulitis of the Large Intestine" and "Management of Diverticulosis."

* * *

Mrs. William J. Mayo, widow of one of the founders of the Mayo Clinic, died Friday, February 1, 1952, in her winter home at Tucson, Arizona, following a stroke, at the age of eighty-seven. Born Hattie May Damon, Mrs. Mayo was the daughter of Mr. and Mrs. Eleazor Damon, pioneer Rochester, Minnesota, settlers. Mrs. Mayo and "Dr. Will" were married November 20, 1884. She became known to thousands as a devoted homemaker and mother and for her charm as hostess to the clinic staff, to visiting doctors and friends. Mrs. Mayo is survived by two daughters, Mrs. Waltman Walters and Mrs. Donald C. Balfour, eight grandchildren and nineteen great grandchildren.

* * *

Dr. Harold S. Diehl, dean of the University of Minnesota college of medical sciences, together with four other doctors, recently completed an inspection tour of medical care facilities of the Pacific Coast naval district, and Pacific command installations in Hawaii. On the return voyage installations on the USS *Repose* assigned to Korean waters for the past sixteen months, were inspected. The trip was made

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at the invitation of the Secretary of the Navy and the Surgeon General. Dr. Diehl's report upon his return was laudatory of the medical care being given to our fighting forces in Korea.

* * *

Endowment of a research professorship in medicine, primarily in the field of high blood pressure, at the University of Minnesota, has been made possible through the receipt of a bequest from the estate of the late George S. Clark, prominent Georgetown, South Carolina, lumberman, who died in 1944. His early years were spent in this part of the country in association with the Carpenter lumber interests. After completing a project to reorganize one of the largest lumber mills in the South, Clark retired to Minneapolis in 1942. The bequest to the University, amounting to almost $400,000 in securities plus an interest in West Virginia coal lands, consists of the residue of the estate after payment of cash legacies to relatives, friends and Georgetown charities.

HOSPITAL NEWS

At a meeting of **St. Joseph's Hospital** staff, Saint Paul, held February 12, 1952, the hospital was presented with a plaque of merit by the Minnesota Public Health Association for being first to establish a routine x-ray of all patients admitted.

Dr. John Briggs presided at the meeting, and Dr. Herman Moersch of Rochester represented the Minnesota Public Health Association and made the presentation address. He related how, when it had been found that there was a higher incidence of tuberculosis among the nurses of St. Joseph's Hospital than in the general population, steps were taken by the Nurses Alumni Association of St. Joseph's, under the leadership of Miss Lucille McCoy, to raise the necessary funds to undertake the x-ray program.

Among those present were: Dr. A. J. Chesley, executive secretary of the Minnesota State Board of Health; Dr. M. E. Knapp, Father Flynn, Milton Rosen, A. A. O'Leary of the Blue Cross, Ray Higgins, executive secretary of the Minnesota Heart Association, and Dr. F. J. Hill, commissioner of health, Minneapolis Department of Health.

* * *

Dr. Ames W. Naslund is the new chief of staff at **St. Barnabas Hospital,** Minneapolis, with Dr. Archie Smith, vice chief and Dr. Harold I. Buchstein, secretary-treasurer.

* * *

Dr. Robert Cranston was elected chief of staff at **Glenwood Hills Hospital,** Minneapolis, for 1952. Other officers elected are: Dr. Robert Meller, vice president, and Dr. Leslie Caplan, secretary.

* * *

Dr. Edwin G. Knight, of Swanville, was elected president of the staff of **St. Gabriel's Hospital,** Little Falls, at the annual meeting in January. Dr. G. P.

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Schmitz of Little Falls was elected vice president, and Dr. R. J. Stein of Pierz was chosen as secretary. Named to the executive committee were: Dr. S. W. Watson of Royalton, Dr. G. W. Heine, Little Falls, and Dr. R. A. Stoy, Little Falls.

* * *

The **Caledonia Community Hospital** will have as directors for the next three years Dr. N. T. Norris and Dr. J. J. Ahlfs, elected at the annual meeting in February.

* * *

Dr. L. W. Johnsrud was elected chief of staff of the **Hibbing General Hospital** at the tenth anniversary meeting of the hospital staff in February. Dr. T. R. Schweiger was chosen vice president and Dr. B. P. Owens was named secretary.

* * *

Elizabeth Kenny Institute, Minneapolis, has received a "full approval" rating from the American College of Surgeons in Chicago, according to Marvin L. Kline, executive director of the Sister Elizabeth Kenny Foundation.

Announcement of the "full approval" rating was made by Dr. Paul S. Ferguson, assistant director in charge of hospital standardization of the American College of Surgeons, following a survey in which the Institute scored 714 of a possible 785 points for a 91 per cent rating.

According to the report, Elizabeth Kenny Institute earned 578 of a possible 640 points in the "essential divisions" survey and 136 of a possible 145 points in the "complementary and service divisions."

BLUE CROSS-BLUE SHIELD

Recent study of sixty of the contracts of other Blue Shield plans in the continental United States has revealed interesting facts about the Minnesota Blue Shield contract. Questions are frequently raised about service and indemnity features of other plans. Premiums, waiting periods, and fees involved in other Blue Shield contracts provide a yardstick by which the liberality of the Minnesota program can be judged.

Without going into the uninteresting details of a statistical analysis it can be stated that about two-thirds of the plans analyzed are of the service type rather than indemnity. Indemnity plans usually provide a stipulated fee which might or might not constitute full payment for the service rendered. If the fee does not represent payment in full, the balance is collectible from the subscriber. Service plans usually include such related services as x-rays, endoscopy and anesthesia. Even among the 20 or more indemnity Blue Shield plans, many are attempting to convert to service contracts, since the latter are recognized as being more liberal from both the subscriber's and physician's viewpoint.

Another interesting comparison was that involving waiting periods for obstetrical cases, previously known conditions and tonsillectomies. The more liberal the policy, the shorter the waiting period. Thirteen of the plans analyzed excluded pre-existing conditions from contract coverage. Comparatively few plans had shorter waiting periods than those of Minnesota, and in 18 the waiting periods were longer.

Analysis and tabulation of premium rates of the various other plans presented some real difficulties. Only 39 of the service type of Blue Shield plans were reviewed regarding their premium rates. In general, it was found that the premium rates were higher for other Blue Shield contracts than for that of Minnesota, but this statement is particularly true regarding the family type of contract.

From these statements it is found that Minnesota Blue Shield, according to this analysis, (1) belongs with the majority of Blue Shield plans having the more liberal service type of contract, (2) compares very favorably with other Blue Shield plans in the length of waiting periods for confinement cases, tonsillectomies, and pre-existing conditions, and (3) has lower premium rates, especially for family contracts, than many of the other Blue Shield plans. Thus, in each of these features Minnesota Blue Shield's contract is more advantageous to both subscribers and doctors than many other Blue Shield contracts.

FLUORIDATION OF WATER

(Continued from Page 230)

References

1. Armstrong, W. D., and Brekhus, P. J.: Possible relationship between the fluorine content of enamel and resistance to dental caries. J. Dent. Research, 17:393 (Oct.) 1938.
2. Ast, D. B.; Finn, S. B., and Chase, Helen C.: Newburgh-Kingston caries fluorine study. III. Further analysis of dental findings including the permanent and deciduous dentitions after four years of fluoridation. J.A.D.A., 42:188 (Feb.) 1951.
3. Cox, C. R., and Ast, D. B.: Water fluoridation—a sound public health practice. J. Am. Water Works A., 43:641-48 (Aug.) 1951.
4. Dean, H. T.; Arnold, F. A., Jr., and Elvove, E.: Domestic water and dental caries in 4,425 white children aged twelve to fourteen years of age of thirteen cities in four states. Pub. Health Rep., 57:1155-1179 (Aug. 7) 1942.
5. Dean, H. T.; Arnold, F. A., Jr.; Jay, Philip, and Knutson, J. W.: Studies on mass control of dental caries through fluoridation of the public water supply. Public Health Rep., 65:1403 (Oct. 27) 1950.
6. Division of Dental Public Health: Better health for 5 to 14 cents a year through fluoridated water. Pub. Health Serv. Pub. No. 62, revised April, 1951.
7. Maier, F. J.: Fluoridation of public water supplies. J. Am. Water Works A., 42:1120 (Dec.) 1950.
8. McKay, F. S.: Mottled enamel: early history and its unique features. Fluorine and Dental Health, p. 1. American Association for the Advancement of Science, 1942.
9. Peterson, J. K.: Naturally fluoridized water gives Milroy and Walnut Grove a low DMF rate. North-West Dentistry, 30:211-212 (July) 1951.
10. Russell, A. L., and Elvove, E.: Domestic water and dental caries. Pub. Health Rep., 66:1389-1401 (Oct. 26) 1951.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

AUDITORY TRAINING FOR THE DEAF. By Mary Wood Whitehurst and Edna K. Monsees. $3.12 postpaid. The Volta Bureau, 1537 35th Street N.W., Washington 7, D. C.

In recent years tremendous advances have been made in the education and communicative retraining of persons with impaired hearing. Modern hearing aids and improved educational methods have made oral communication less difficult.

Auditory training material for deaf and hard of hearing children and for hard of hearing adults has been published. It is believed, however, that this is the first book on the subject specificially written for the deaf adult.

Tests indicate that there are few totally deaf people. Many "deaf" persons have some residual hearing which can be trained and made to reinforce lipreading skill, thus making oral communication increasingly simple.

The material in this book has been prepared with three groups in mind: students in the schools for the deaf; alumni of schools for the deaf; others with severely impaired auditory acuity and discrimination.

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The lesson material has been tested and retested. There are thirty-eight lessons, each devoted to one or more speech sounds, progressing from the vowel sounds through the more difficult consonant sounds. Detailed instructions are provided, making it possible for the lessons to be used by teachers or by pupils for home study.

JANE WALKER'S BOOK OF ART LECTURES FOR LIP READING PRACTICE. $3.12 postpaid. The Volta Bureau, 1537 35th Street N.W., Washington 7, D. C.

Jane Walker's contribution to the teaching of lipreading is distinctive and unique. She was not only a skillful teacher of lipreading as a subject, but she was a person so well versed in art that she was able to combine those two subjects with great effectiveness. She was for many years a regularly scheduled lecturer in the Metropolitan Museum of Art—the only teacher of lipreading ever so scheduled. Her lectures were designed for and presented to people who read her lips. They were a source of great inspiration, for her appreciation of art extended far beyond the pictures themselves into a feeling for the artist, his life, and his times.

Along with the book goes a package of prints of some of the pictures by artists discussed in the lectures. Two of the prints were secured by courtesy of the Metropolitan Museum, one has been donated by the *Saturday*

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Evening Post, and still others are the gift of the National Geographic Society.

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UNTOWARD REACTIONS OF CORTISONE AND ACTH. By Vincent J. Derbes, M.D., F.A.C.P., Associate Professor of Medicine, Tulane University of Louisiana School of Medicine; Head of Department of Allergy, Ochsner Clinic; Visiting Physician, Charity Hospital of Louisiana at New Orleans; and Staff Member, Foundation Hospital, New Orleans, Louisiana; and Thomas E. Weiss, M.D., Instructor in Medicine, Tulane University of Louisiana School of Medicine; Member of Department of Medicine, Ochsner Clinic; Visiting Physician, Charity Hospital of Louisiana at New Orleans; and Staff Member, Foundation Hospital, New Orleans, Louisiana. 77 pages. Price $2.25. Springfield, Ill.: Charles C Thomas, 1951.

In only seventy-seven pages of relatively easy reading, the authors have concisely presented a summary of the untoward reactions of ACTH and cortisone. From this book one can obtain clear and quite thorough information regarding the dangers and pitfalls of cortisone and ACTH therapy. The basic physiology of the two compounds is brought out briefly but well. A short but well-selected bibliography is appended to the book.

This book represents a brief résumé of the clinical side effects of ACTH and cortisone.

J. F. Alden, Jr., M.D.

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(Continued from Page 246)

was done and the tumor tissue removed. This was followed by further x-ray therapy which was accompanied by considerable improvement. However, in another six months she had very extensive abdominal metastases and eventually she died. I assume others of you have had similar experiences, particularly those of you who are more in contact with children's surgery. With this in mind, I would like to call upon Dr. T. Chisholm to discuss this paper.

Dr. T. Chisholm: I would like to express my appreciation to Dr. State's review of this subject. My first comment would be on the recoverability of children who have neuroblastoma. This was formerly thought to be a fatal disease. Metastases have nearly always been quite extensive. These should not deter us from removing the tumor and going after the metastases. I recall one youngster who had a large neuroblastoma in the left adrenal, which on being explored transperitoneally was found to have multiple metastases to the liver. The adrenal was removed, and the metastases were given deep x-ray therapy. The child is still alive seven years after surgery. Another example is a youngster who had a right adrenal neuroblastoma which was removed transperitoneally and was thought to be all right. The child came back with a metastasis to the seventh rib. This was treated by surgical excision and x-ray therapy. The child is still alive seven years later. Too often we are too late and there are studded metastases but those with very few metastases warrant treatment.

The second comment I would like to make is on disorders of nerve cells of the ganglia. Both neuroblastomas and ganglio-neuromas may arise up and down the sympathetic chain. Again, I recall a youngster who had a malignant neuroblastoma. The tumor was partially removed and given extensive therapy. There remained a local nodule palpable in the abdomen which was subsequently removed, and the child was cured.

My third comment has reference to tumors of the medulla. Many, on surgery, are found to be malignant carcinoma of the adrenal cortex, mon-functioning in type.

My next comment is in reference to pheochromocytoma which is more common in adults. From my own limited experience, I would say one need not be fearful of giving adrenalin intravenously in enormous amounts at the time the tumor is removed.

My last comment is with reference to abnormal virilism of females. This is a "no-man's-land," extremely treacherous. But whether boys or girls, I am sure we are just beginning to explore the field. Again, I wish to say how thoroughly I enjoyed Dr. State's presentation.

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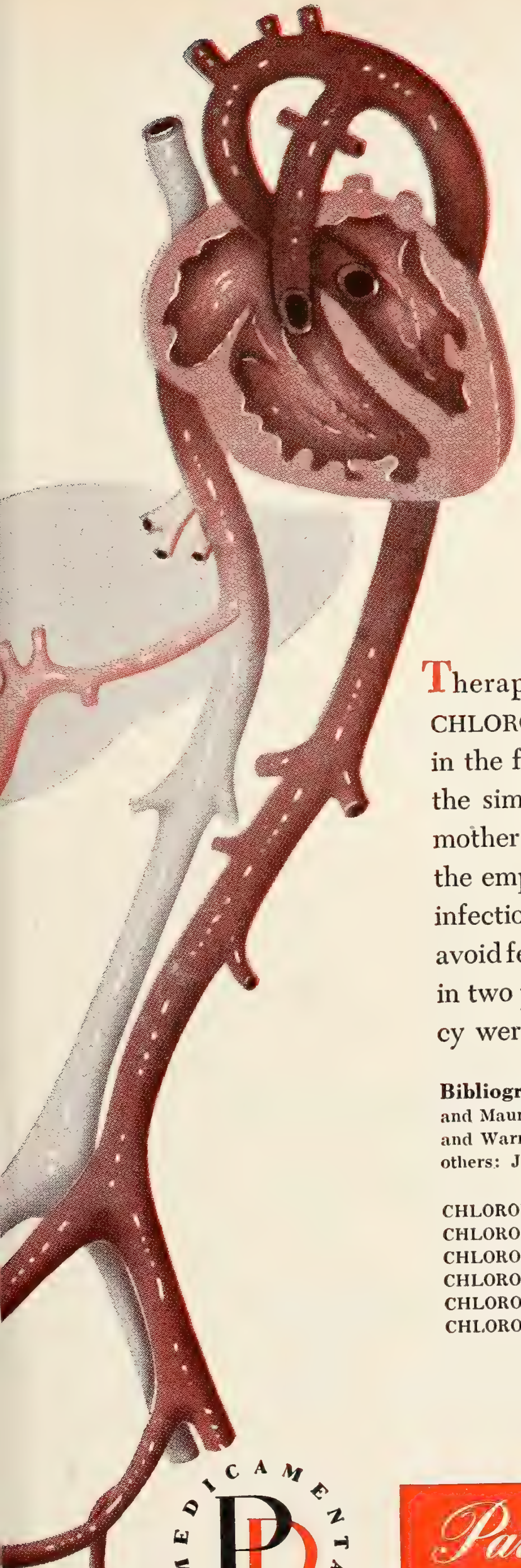

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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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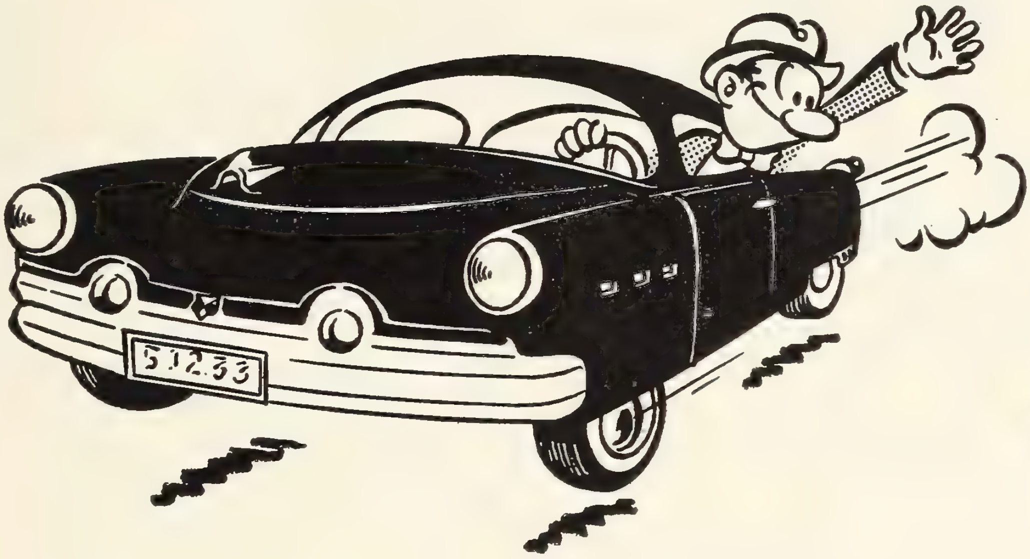

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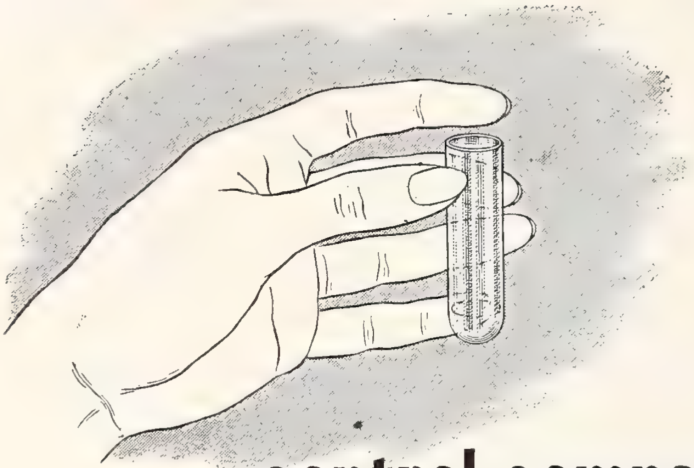

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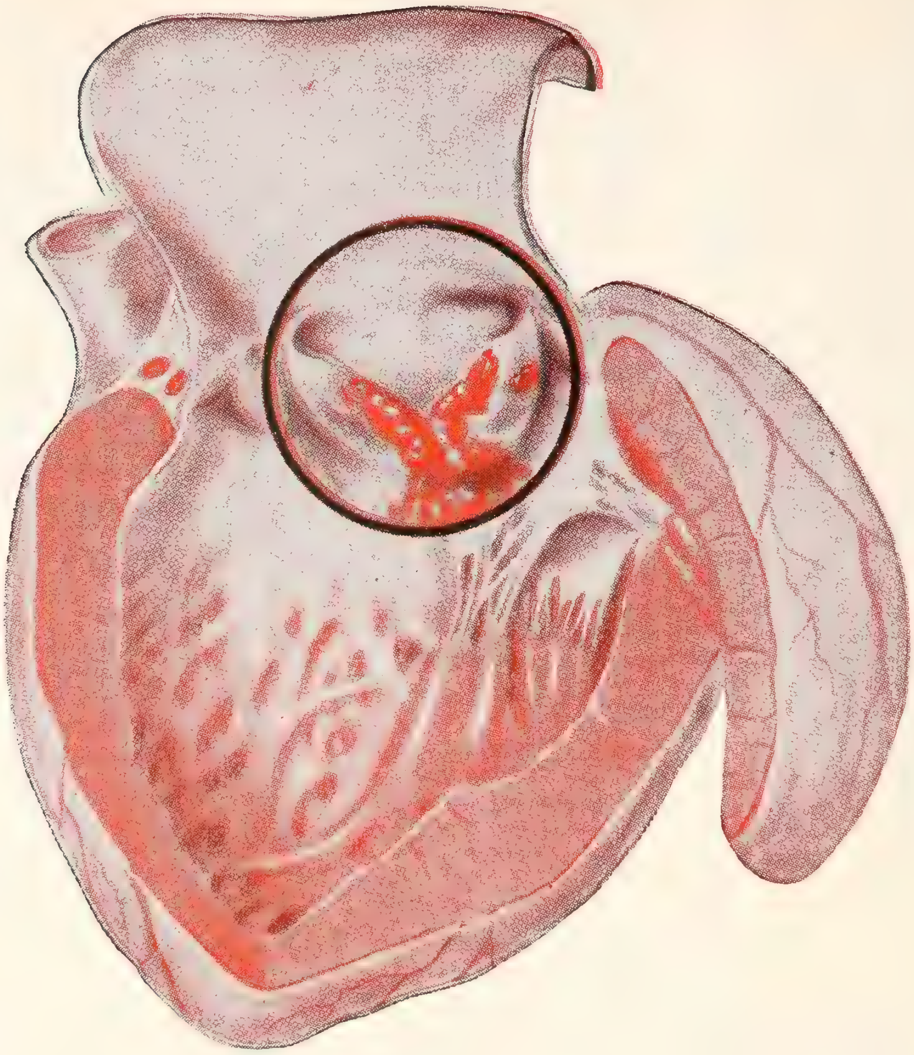

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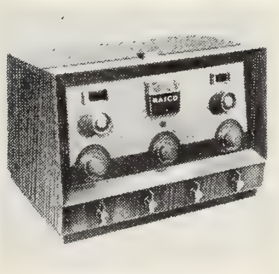

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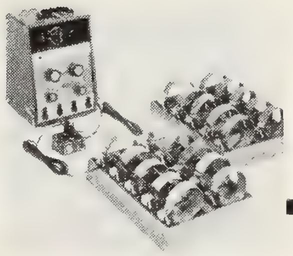

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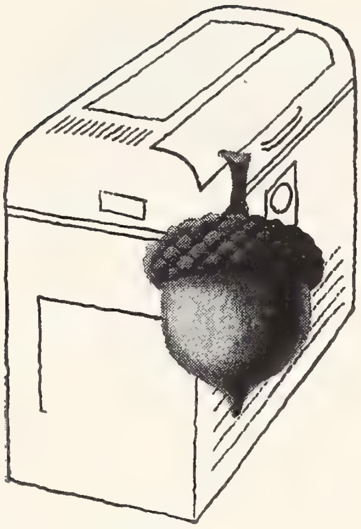

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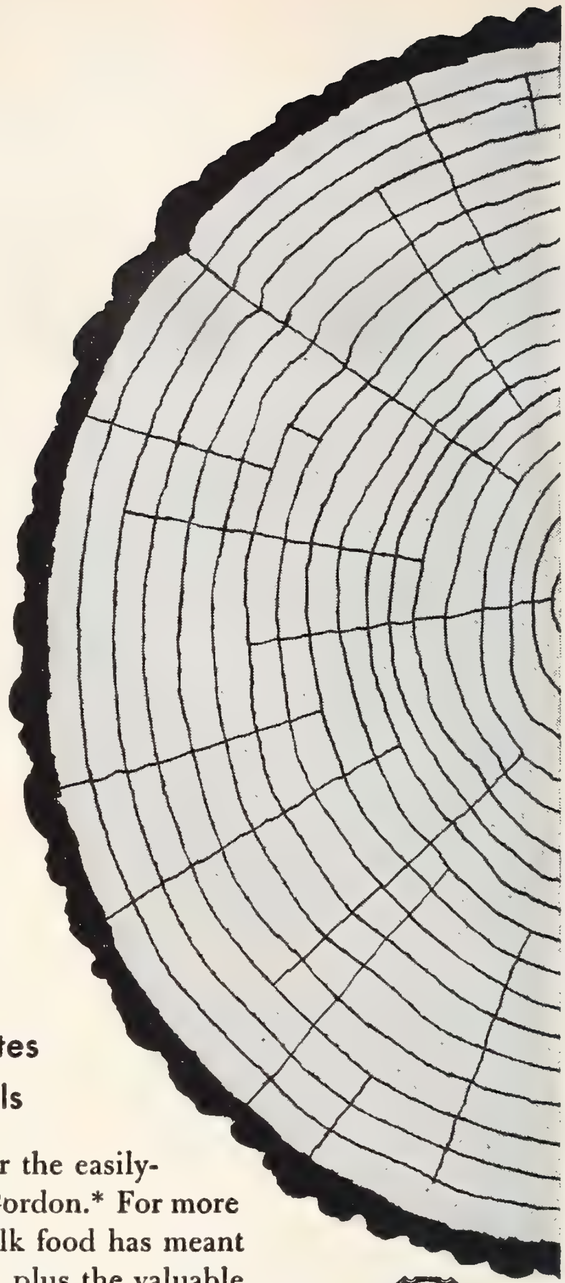

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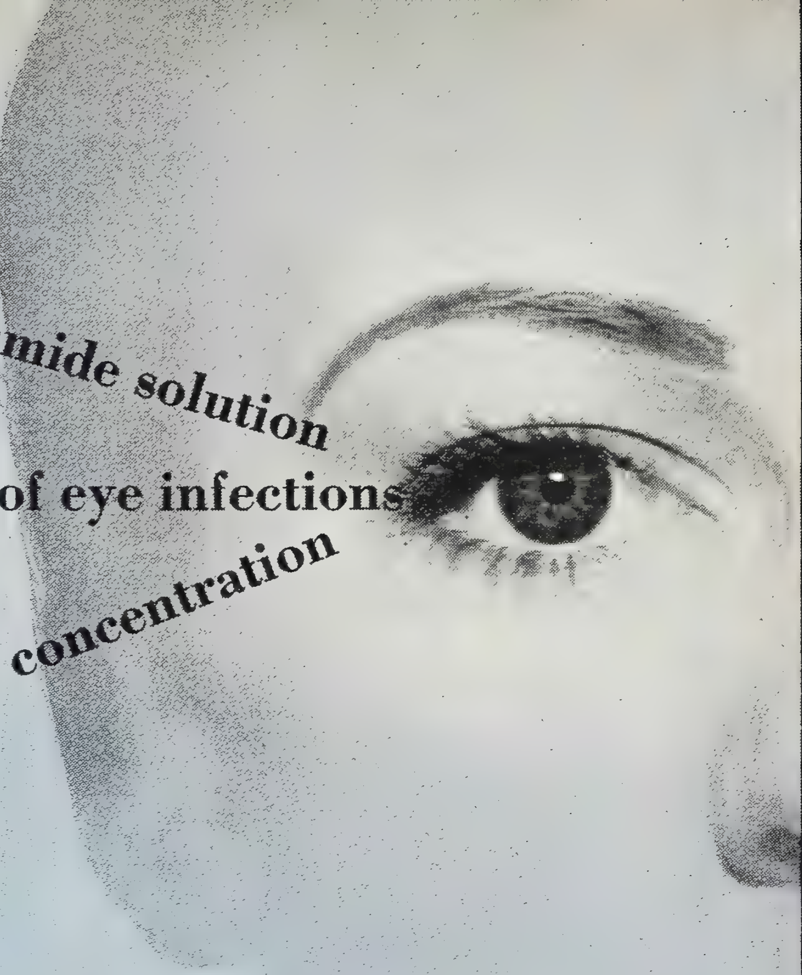

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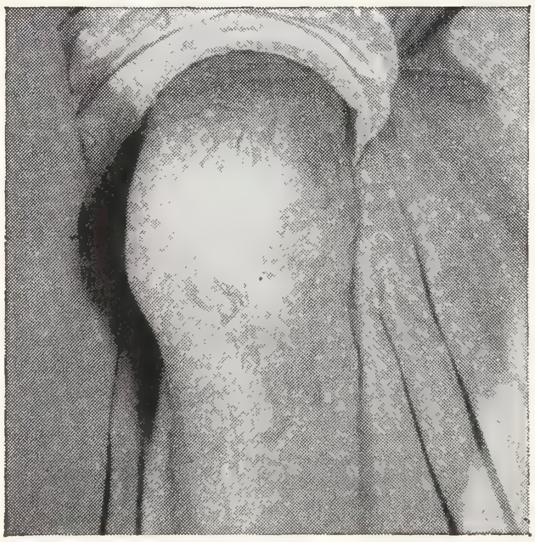

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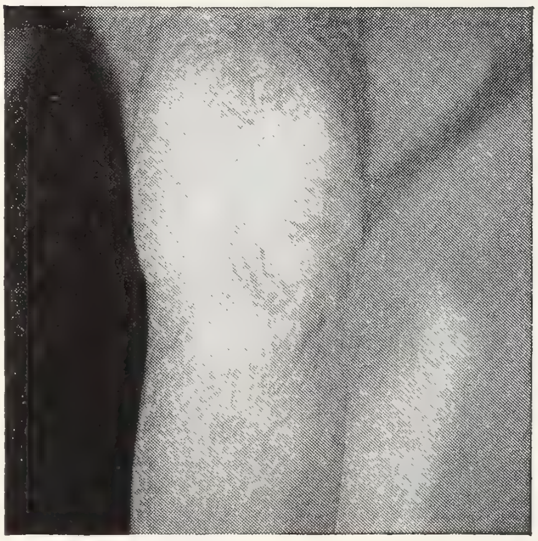

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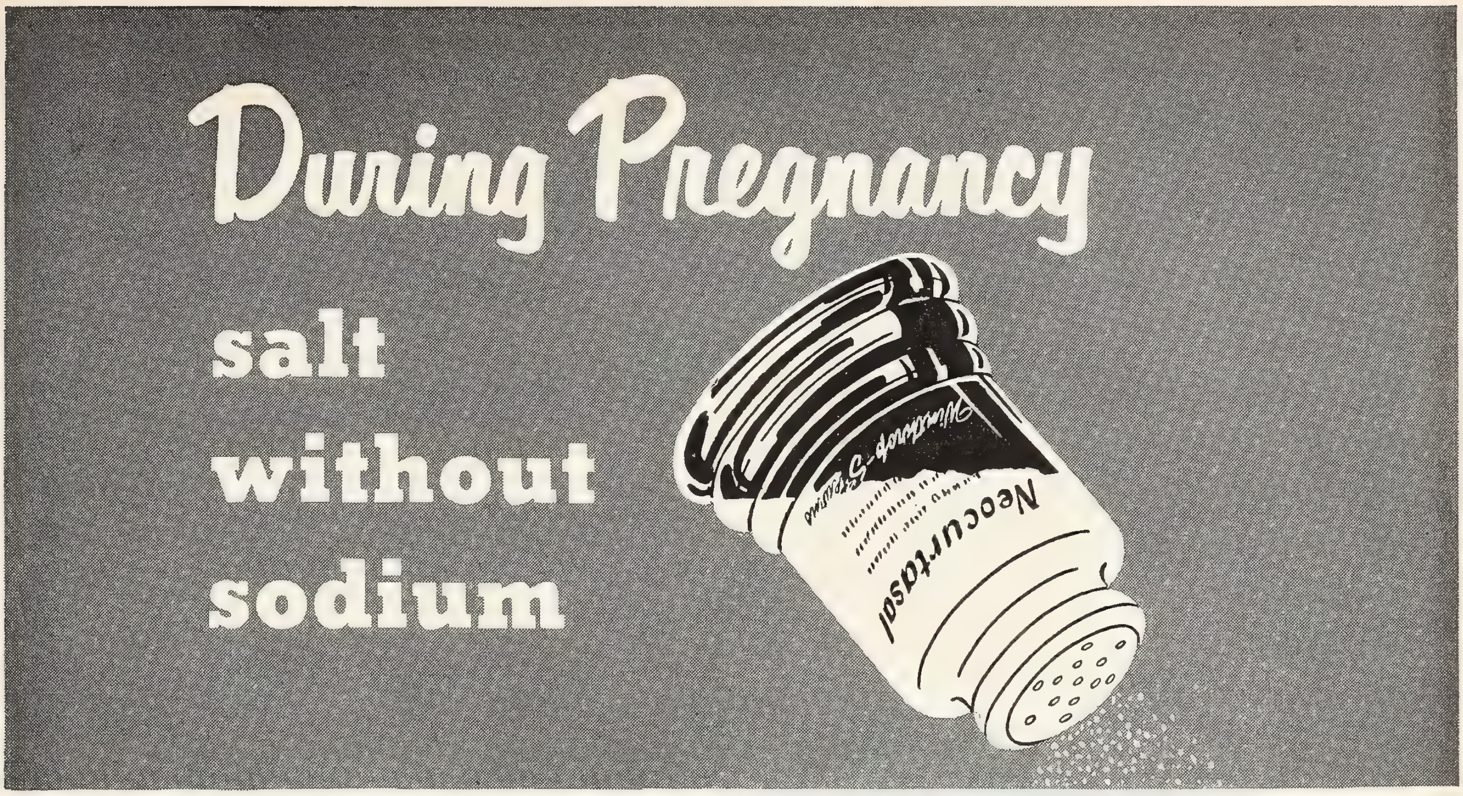
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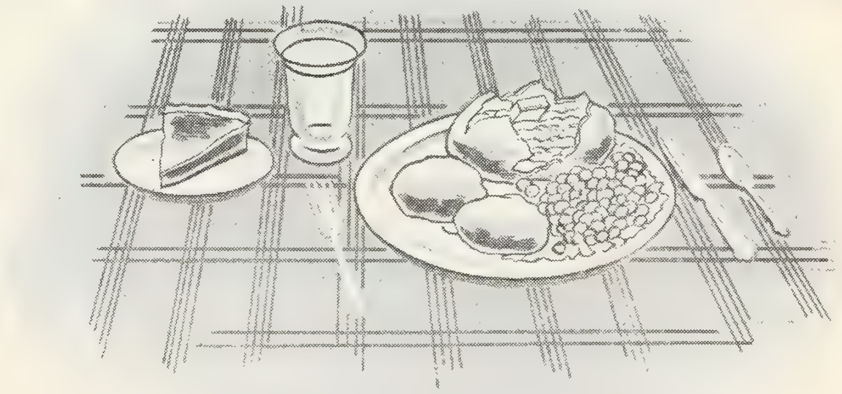

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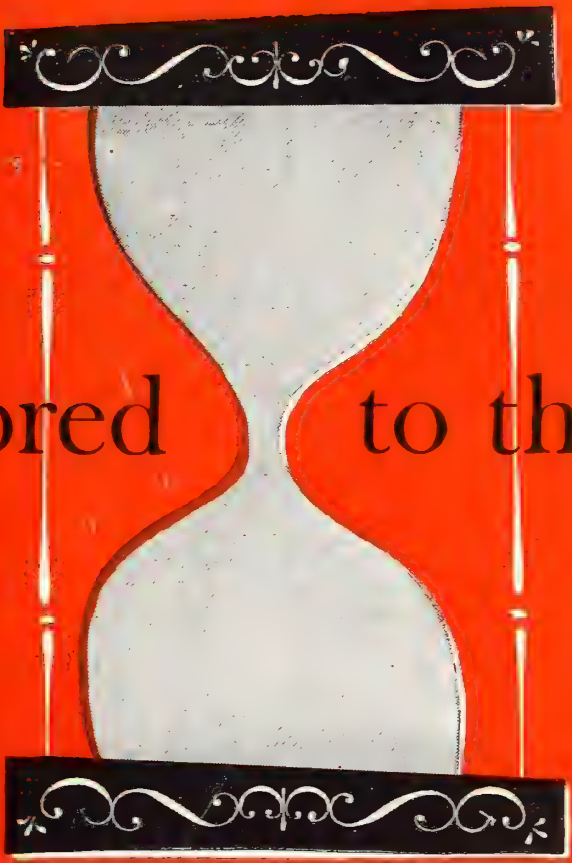

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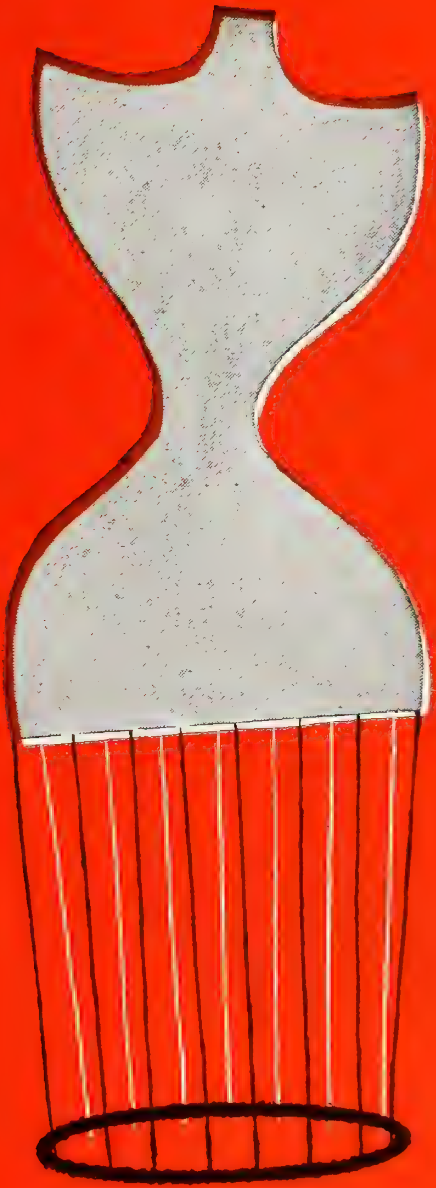

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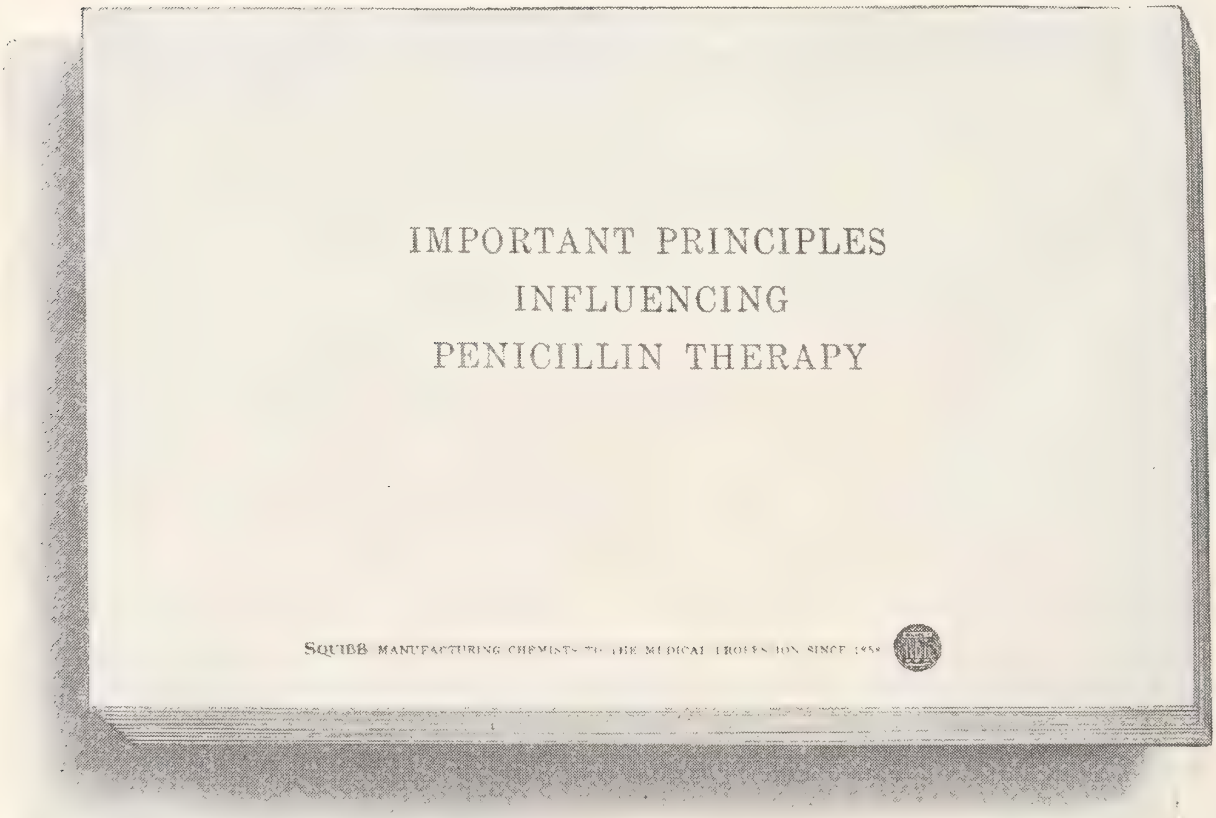

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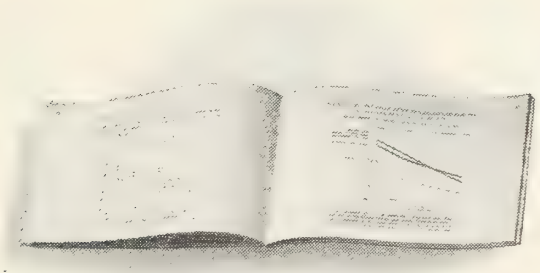

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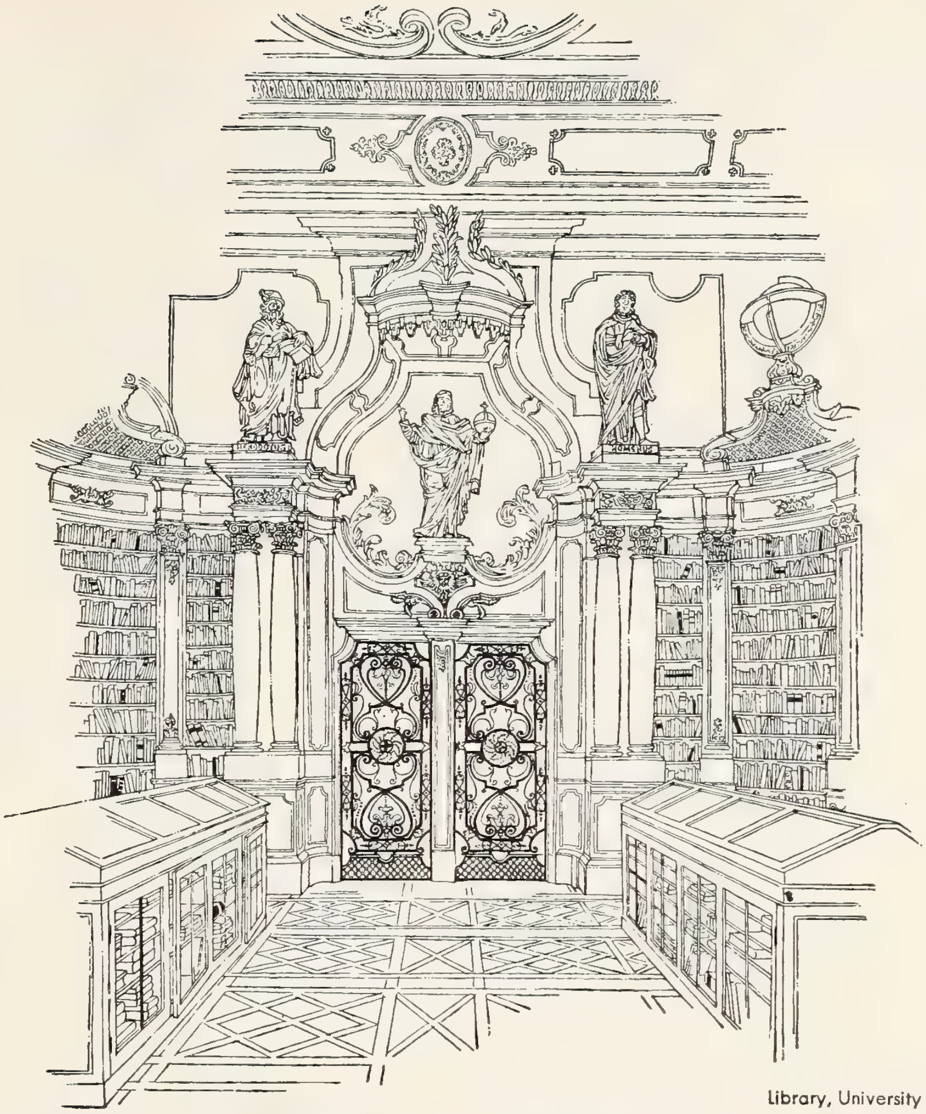

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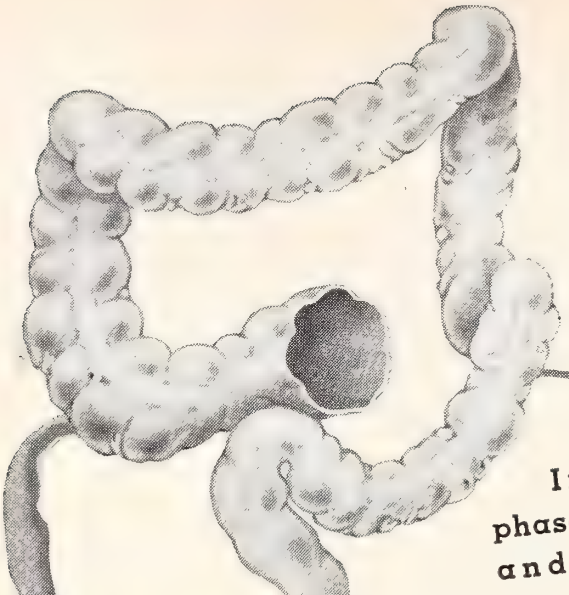

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1. Wills, C. B.: Rocky Mtn. Med. J. 46:743, Sept. 1949.
2. Swigert, William B.: J. Int. Coll. Surg., 14:714, Dec. 1950.

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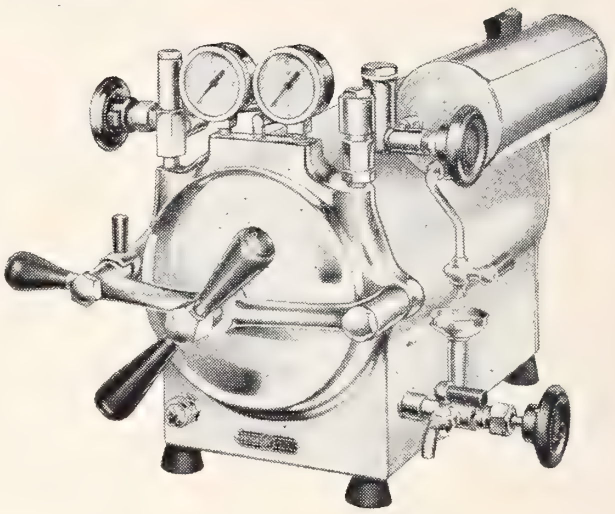

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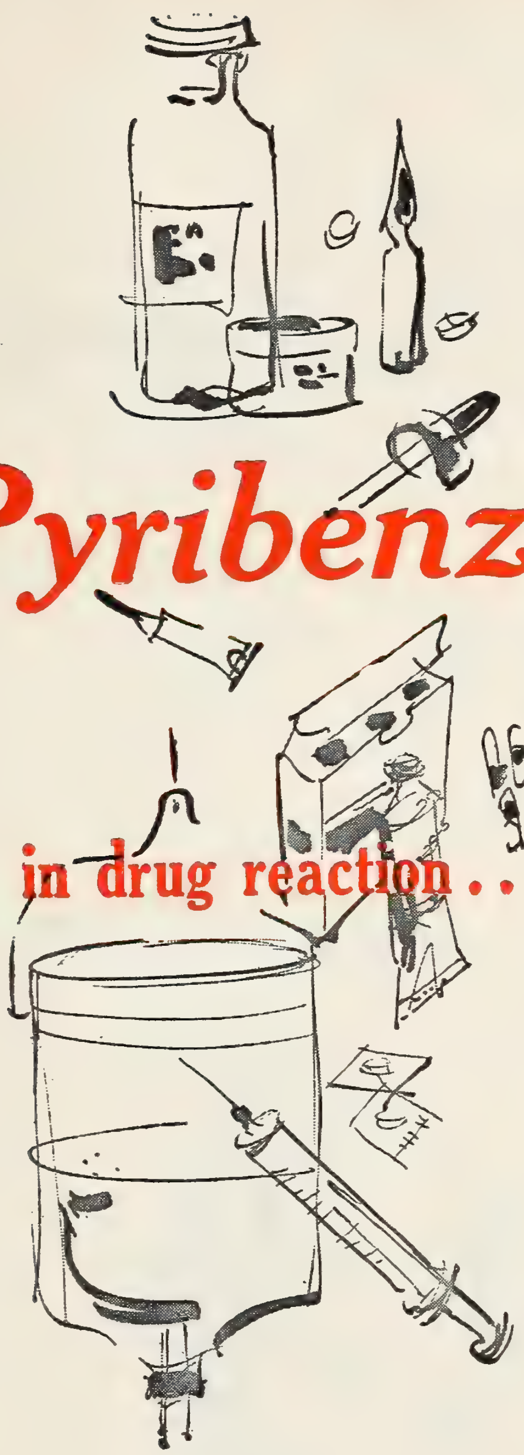

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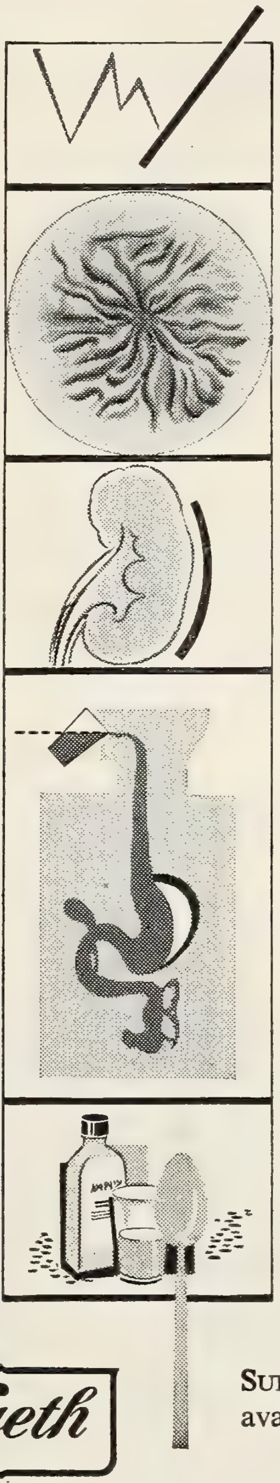

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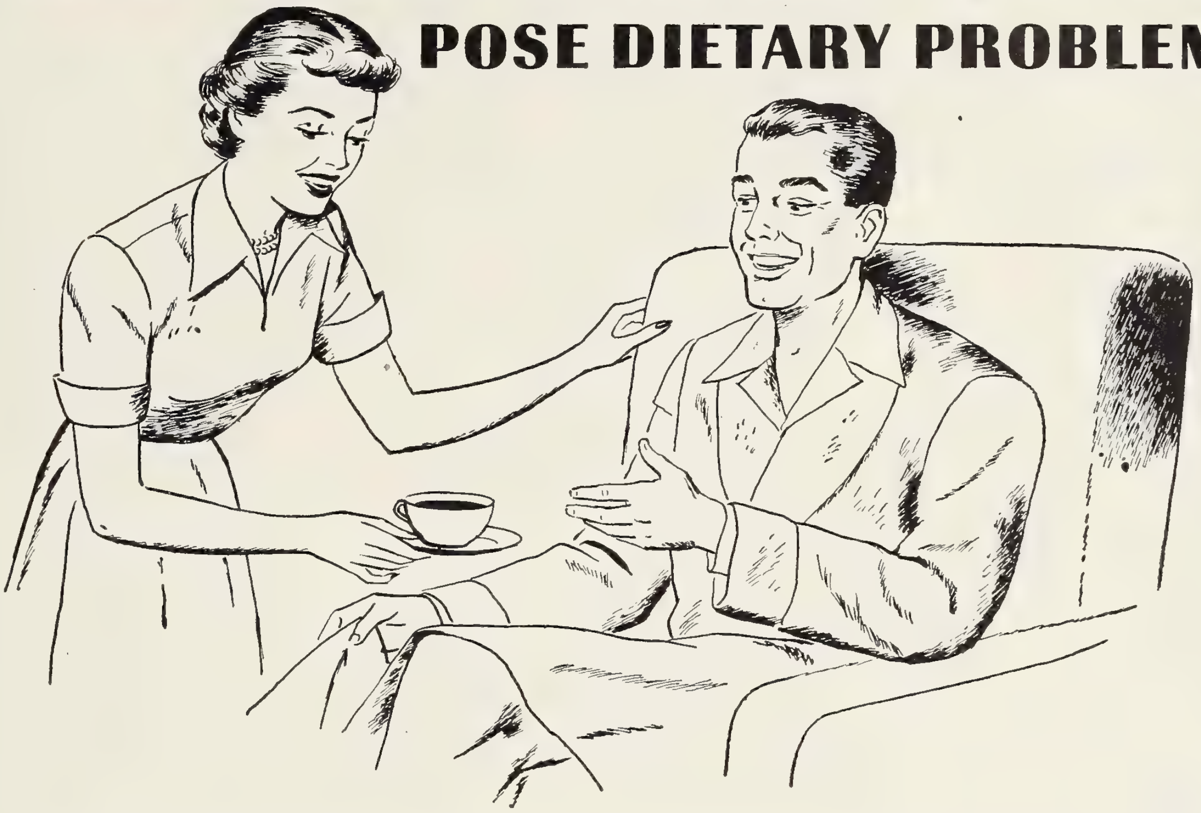

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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CERVICAL SMEARS IN THE DETECTION OF PRECLINICAL CARCINOMA

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MALCOLM B. DOCKERTY, M.D.

Rochester, Minnesota

THE PURPOSE of this presentation is to emphasize certain lines of endeavor in the diagnosis of carcinoma of the uterine cervix—a type of carcinoma which ranks second only to carcinoma of the breast as a cause of death from malignant disease among females. The seriousness and the insidiousness of the condition were recognized a century and a half ago when Baillie wrote, "This disease (ulcer of the cervix) is certainly as formidable as cancer because it terminates fatally, but its progress is different from that of cancer in any other part of the body. There is no enlargement of the uterus, and ulceration continues until the greater part of the uterus is destroyed. . . ."

Surgical attacks on the disease, as typified by operations such as Wertheim hysterectomy, gave promising results chiefly in treatment of early lesions, which unfortunately comprised the minority; the advent of treatment with radium and roentgen rays provided substantially additional salvage; in the hands of a few experienced investigators "combined" techniques, in which surgery and irradiation were used, received merited acclaim. Yet, by the late nineteen thirties, carcinoma of the cervix still claimed the lives of 60 per cent of its victims and it was obvious that some other avenue of approach to the problem was necessary to improve the over-all picture. Such an approach was afforded by applying to cervical carcinoma two novel concepts regarding its very earliest recognizable stages—stages often devoid of clinical symptoms.

Nearly thirty years ago, and despite bitter criticism by many contemporary pathologists, MacCarty stressed the significance, in the diagnosis of malignancy, of cytologic features rather than histologic structure as disclosed under low power magnification. He decried procrastination until spread had made the diagnosis obvious and the outcome hopeless. In 1932, Broders described, and gave the name to, carcinoma *in situ* of the cervix, breast, skin, colon and larynx. He stated, "the microscopist must take into consideration the character of the epithelial cells above everything else" in diagnosing malignancy.

Carcinoma *in situ* is a cytologically malignant lesion that has not broken through the normal barrier that separates epithelium from underlying stroma. In the cervix this early change may, and often does, involve by a process of creeping replacement, so to speak, the mucous glands in the area of the external os. Such involvement of glands does not imply invasion with the resultant possibility of metastasis but it often constitutes a problem of interpretation since practically all carcinomas of the cervix begin in the squamous epithelium at the squamocolumnar junctional zone.

The second important concept, developed by Papanicolaou, embodied the principle that carcinoma, growing on a free surface such as that of the cervix, exfoliated certain of its cellular elements which could be identified as such by cytologic studies of secretions, smears and scrapings from the part. He demonstrated clearly that the material thus shed from the surfaces of cervical carcinomas *in situ* was just as diagnostic

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From the Division of Surgical Pathology and Sections of Obstetrics and Gynecology, Mayo Clinic.

as that derived from advanced growths, and it was oftentimes easier of interpretation. Carcinomas *in situ,* discovered by this cytologic smear technique, were attended by a rate of cure approaching 100 per cent. The present study was conducted in an effort to evaluate our own experience in employing cervical smears as the principal means of detecting early carcinoma of the cervix.

Material

The Sections of Obstetrics and Gynecology at the Mayo Clinic in co-operation with that part of the Division of Surgical Pathology which is situated at St. Mary's Hospital, began to evaluate the cervical smear in 1948. Since August 1, 1950, in the Sections of Obstetrics and Gynecology at the clinic, smears have been obtained almost routinely on new and referred patients, with the exception of new obstetrical patients and women less than thirty years of age whose cervices apparently were normal. As a result, more than 10,000 smears, one from each patient, have been examined by means of the newer cytologic techniques. We have reviewed the records of ninety-two of the first 10,000 patients screened in this manner. These were subsequently proved to have carcinoma of the cervix, although their cervices did not initially exhibit lesions which were believed by the examining physician to be carcinomas.

Clinical Data

The ages of the patients in this group of ninety-two ranged from twenty-five to seventy-six years and were distributed by five-year intervals in Table I. It is apparent that the spread of patients is fairly even between the ages of thirty-five and fifty-five years and that there is a smaller but clearly important group less than thirty-five years of age.

TABLE I.
MALIGNANT CELLS IN SMEARS OF UTERINE CERVIX
92 Patients

Age, years	Patients
25-29	9
30-34	11
35-39	16
40-44	14
45-49	14
50-54	16
55-59	6
60-64	2
65-69	3
over 70	1

The average age of seventy-three patients whose cervical carcinomas proved to be *in situ* was 42.1 years, with a range of twenty-five to sixty-nine years. In the small series of eleven patients with early invasive carcinoma, the average age was 47.8 years with a range of thirty-four to seventy-six years. These figures are essentially in agreement with those quoted by Jones, Galvin and TeLinde, who collected from the literature average ages of 37.1, 36.6 and 38 years for carcinoma *in situ* and who cited forty-eight years as the average age of patients with invasive carcinoma. The stage of the lesions of the remaining eight patients was undetermined for reasons to be pointed out.

Of the ninety-two patients, eighty-one were married, four were widowed, six were divorced, and only one was single. Twelve of the patients had never been pregnant, four had had one or more pregnancies that had resulted in abortion, while the remaining seventy-six had had at least one full-term pregnancy.

The complaints with which these patients sought medical advice were varied. In the majority of cases, there was no relation between the predominant symptom and the cervical carcinoma which ultimately was discovered. Thus, only seventeen patients presented themselves primarily because of gynecologic problems, while sixty-three patients made complaints which were not gynecologic in nature and twelve other individuals requested general examination but made no specific initial complaint. Most of the last group were in Rochester only to accompany a friend or relative.

An attempt was made to determine how many of the ninety-two patients had symptoms of a gynecologic nature which might have provided a clue to the presence of a malignant lesion of the cervix. Forty-eight patients had no recorded symptoms of gynecologic disease. Thirteen patients complained of gynecologic conditions, such as infertility, which were considered irrelevant to this study. From the remaining thirty-one patients were elicited histories of abnormal discharge or bleeding. This symptom did not appear to be the result of the cervical carcinomas of fifteen of these thirty-one patients but the unusual bleeding or discharge of the other sixteen patients at least suggested the presence of a neoplasm of the genital tract. Ten of the ninety-two patients previously had undergone subtotal hysterectomy. In the histories of eight patients was recorded the fact that the cervix previously had been subjected to cauterization. In three of these eight cases this procedure had been carried out at the Mayo Clinic and in five cases it had been performed elsewhere.

The cervices of nineteen patients of the ninety-two were said, on inspection, to be normal. These patients included all post-menopausal women whose cervices were merely described as "senile." Vaginal stenosis prevented inspection of the cervices of two patients at the time when the smear was obtained. The cervical lesions of twenty-four patients were said to be minimal and did not appear significant. The cervices of thirty-six patients exhibited lesions which appeared to be clinically significant enough to merit the designation "angry," "friable," "denuded," "rough," "granular" or "reddened," and for which treatment by cauterization was recommended or carried out. In only eleven instances did the description of the cervix suggest that a suspicion of malignancy had been aroused in the mind of the examiner.

Although the relationship between leukoplakia of the lip or of the vulva and the subsequent appearance of squamous cell epithelioma has long been accepted, it has not been universally recognized that leukoplakia of the cervix may be a precarcinomatous lesion. In this series of cases leukoplakia was noted four times by the clinician only. In one case leukoplakia was a pathologic diagnosis only and in three additional cases the presence of leukoplakia was noted by both the clinician and the pathologist. Thus, in eight of ninety-two cases, or more than 8 per cent, leukoplakia was associated with invasive or pre-invasive carcinoma of the cervix.

In a further attempt to learn the value of the smear method in finding unsuspected cervical carcinoma, the patients were divided into groups in accordance with the indications for biopsy. It was found that, in forty-nine cases, the appearance of the cervix alone justified the securing of a specimen for biopsy. In one case biopsy was taken solely because of the patient's fear of carcinoma and her request that it be ruled out. In thirty-eight cases a smear only was taken at the time of the first examination, the specimen for biopsy being secured later as a result of the positive report on the smear. In one case biopsy was not performed, and in three others the procedure was carried out in the patient's home city.

An attempt was made to determine the final stage of extension of each lesion which was detected as a result of smear or biopsy. Seventy-three patients were classified as having squamous cell epithelioma of the cervix Stage 0;* that is, carcinoma *in situ.* The carcinomas of eight patients were of Stage 1. However, at least four of the eight lesions were placed in this category *after* conization of the cervical canal or other procedures had disclosed what the surgical pathologist termed "early" or "very early" infiltration. In one instance of the eight, a diagnosis of epidermoid carcinoma, Grade 3, with minimal infiltration, was made on a specimen taken for biopsy in the office. At subsequent hysterectomy in this case, only carcinoma *in situ* was found. In three cases the stage was listed as two but in none of these cases was it possible to secure pathologic verification of extension such as is designated by this stage, because the patients were treated with irradiation. One patient had a concealed adenocarcinoma of the cervix and endocervix. In seven cases biopsy either was not carried out or final biopsy was done elsewhere and the anatomic extent of the lesion could not be determined with accuracy. It is difficult to believe that a carcinoma of the cervix, Stage 2, could be unrecognized or unsuspected at the time that the initial examination was made, but in at least one of the three cases in which the lesions were listed as being of Stage 2, a correct diagnosis appears to have been made only because a smear was taken.

Although a consideration of treatment does not properly belong in a presentation dealing only with the cervical smear as a diagnostic technique, nonetheless it might be of interest to point out briefly the final disposition of the ninety-two patients included in this series. Of the seventy-three patients whose lesions were proved to be of Stage 0, forty were subjected to vaginal hysterectomy, fourteen to total abdominal hysterectomy, one to radical hysterectomy, eight to excision of

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*Added to International Classification of Cervical Cancer.

TABLE II.

INITIAL SMEAR IN EARLY CERVICAL CARCINOMA
92 Cases

Group		Cases
Number	Significance	
5	malignant	59
4	probably malignant	17
3	suspicious	12
2	probably benign	1
1	negative	3

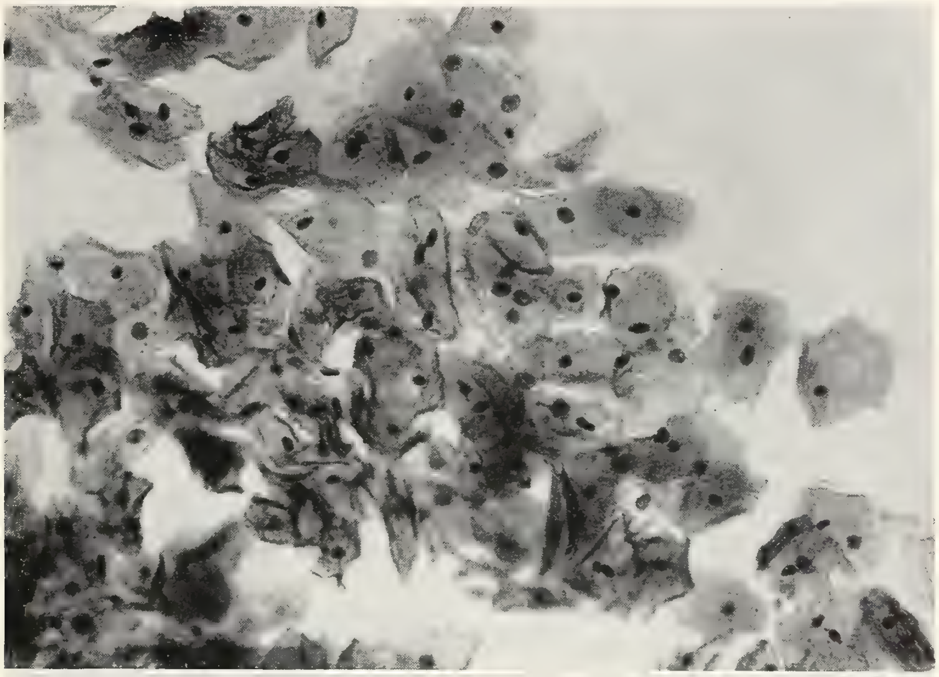
the cervical stump, four to insertion of radium and one to radium therapy followed by surgical operation. Five patients who received a provisional diagnosis of carcinoma "probably" *in situ* were untreated here for various reasons. Of these, one was known to have undergone panhysterectomy elsewhere. Of the eight patients whose lesions were of Stage 1, four underwent operation only, three received irradiation only and one was treated with irradiation and surgical operation. All three of the patients whose carcinomas were of Stage 2, received irradiation, and the one patient with adenocarcinoma of the cervix and endocervix was treated by total abdominal hysterectomy. Of the seven remaining patients, the final stage of whose carcinomas was unknown, five were treated by their home physicians and two received no treatment of which we have a record.

An effort was made to ascertain whether preoperative biopsy or cauterization destroyed any of the lesions and we centered attention on sixty-four patients whose carcinomas *in situ* were treated surgically at the clinic. Data suitable for this type of analysis were furnished by fifty-three records. Complete study of the cervices of these fifty-three patients revealed residual carcinoma *in situ* in thirty-eight instances only. Fourteen of these thirty-eight had undergone cauterization following biopsy in the office. Of the group of fifty-three patients, there were fifteen who exhibited no residual carcinoma at the time of surgical exploration; of these, seven had undergone biopsy only and eight, biopsy followed by cauterization. It is apparent, therefore, that both cauterization and simple biopsy of the uterine cervix can eradicate completely a carcinoma *in situ* but the proof of total destruction of the lesion can be obtained only at the time of examination in the laboratory of the completely excised cervical epithelium, whether obtained by cervical amputation, conization or hysterectomy.

In a few cases, either the initial smear or the biopsy failed to reveal the carcinoma which later was found to be present. In two cases, the result of the initial smear was negative while the biopsy revealed, in each instance, squamous cell epithelioma *in situ*. In one case, a negative smear was obtained but, on the following day smear and biopsy each gave a positive result. In three cases, the initial smear gave a positive result but the biopsy was not confirmatory. In one of these three cases, two smears were classified as of Group 3 and Group 4 (Table II) respectively. On biopsy, chronic cervicitis was reported. Complete search of the excised cervical stump yielded a minute squamous cell epithelioma, Grade 2, *in situ*. In the second case of the three, biopsy was interpreted as giving evidence of chronic cervicitis with leukoplakia and "borderline" neoplastic changes. Accordingly, another smear and a second specimen were obtained. In the former suspicious cells were seen but the tissue was the site of chronic cervicitis only. However, at vaginal hysterectomy a definite diagnosis of squamous cell epithelioma *in situ* was established. Concerning the third patient of the three, the smear disclosed the presence of malignant cells and the report of biopsy was "inflammatory tissue." One month later biopsy of the cervix and dilatation and curettage were performed elsewhere, but carcinoma was not found. Again, one year later, postmenopausal bleeding developed. Two months after the onset of bleeding, and approximately fifteen months after the positive smear had been obtained, biopsy yielded a specimen which was found to contain squamous cell epithelioma, Grade 3.

Pathologic Features

Detailed discussion of the cytologic features of cervical smears for diagnosis of malignancy lies beyond the scope of this presentation. Suffice it to say that the critical criteria of large nuclear size, heavy nuclear membranes, irregular nuclear outline, hyperchromatism and so forth are matters of general acceptance.[4,6] Figures 1 through 4 may be regarded as typical end points of a range of cellular alterations correlating cytologic with histologic interpretation. In the study of smears the line which separates hyperplasia from malignant neoplasia is not as sharp as its histologic counterpart. Accordingly we have, like others, found it advisable to retain five classifications (Table II) in reporting results of our analysis. With experience, the proportion of equivocal interpretations has been materially reduced but the number of carcinomas detected by repeating smears and performing biopsy in the cases concerned in this report has promoted pathologic humility and discouraged dogmatism.



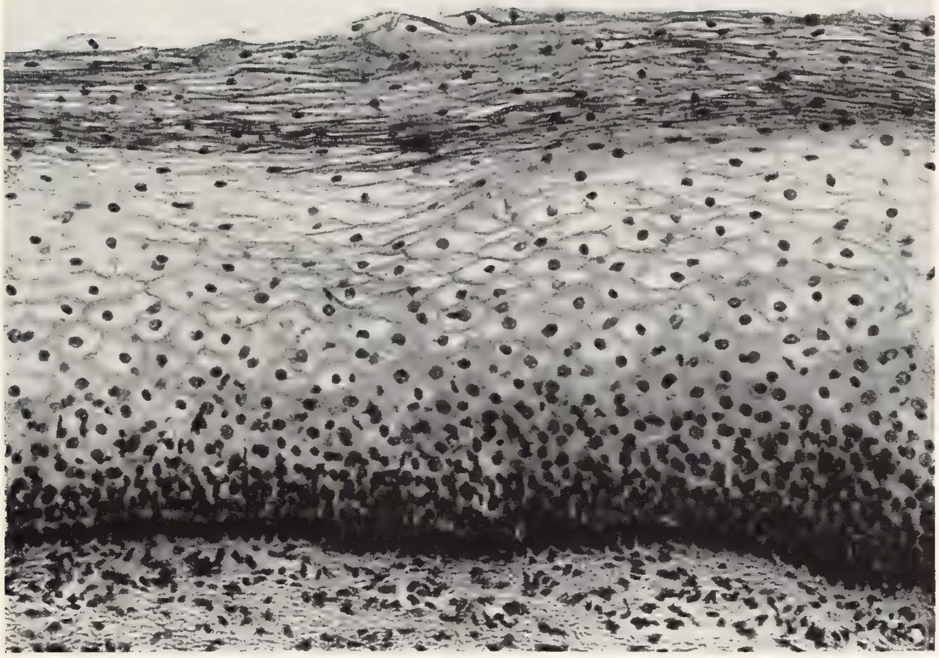


Fig. 1. Normal adult squamous cells from the cervix. Note the small nuclei and voluminous cytoplasm (Papanicolaou stain × 200).

Fig. 2. Normal squamous epithelium of the cervix with progressive maturation toward the surface (polychrome methylene blue stain of fresh frozen section × 145).

Of 5,500 cases studied by the method just mentioned between January 1 and September 6, 1951, we requested additional studies on fifteen patients because of false "suspicious" reports. Subsequent smears or biopsies, either or both, decided the issue. In two additional cases so-called false positive smears appeared not to have a basis in carcinoma. In the last three months of the period there were only three false suspicious smears and no false positives. Of the three false negative interpretations in the entire series, one should have been considered unsatisfactory owing to an excess of pus in the smear. In the others, one or two malignant cells had escaped detection on the original analysis.

While the fruitless biopsies made necessary by the aforementioned "blunders" must be accepted as evidence that smears represent a less efficient method than was hoped for, still results have been most encouraging. During the same period in 1951 that has been mentioned, study of cervical smears was responsible for, or aided materially in, the diagnosis of no less than fifty-two potentially curable carcinomas. Representing, for the most part, invisible and nonsymptomatic growths, the group comprised perhaps 30 per cent of all cervical malignancies encountered at the clinic over the same span of time. Differences in the outcome in the two groups, carcinomas *in situ* and infiltrating carcinomas have been previously emphasized.

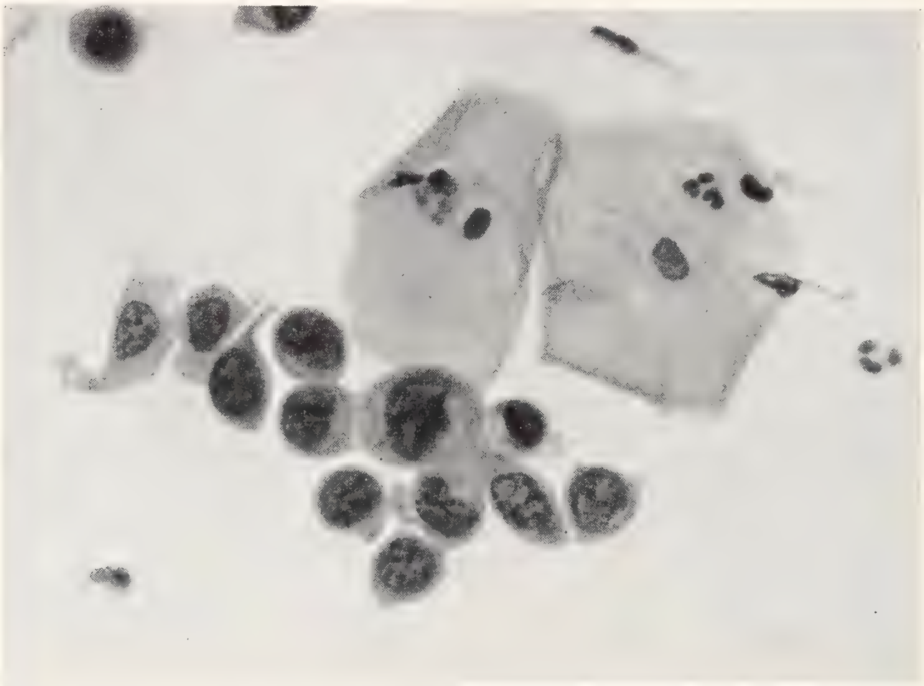


Fig. 3. A cluster of malignant and two benign cells. Note the nuclear pleomorphism, hyperchromatism and anisocytosis (hematoxylin and eosin×475).

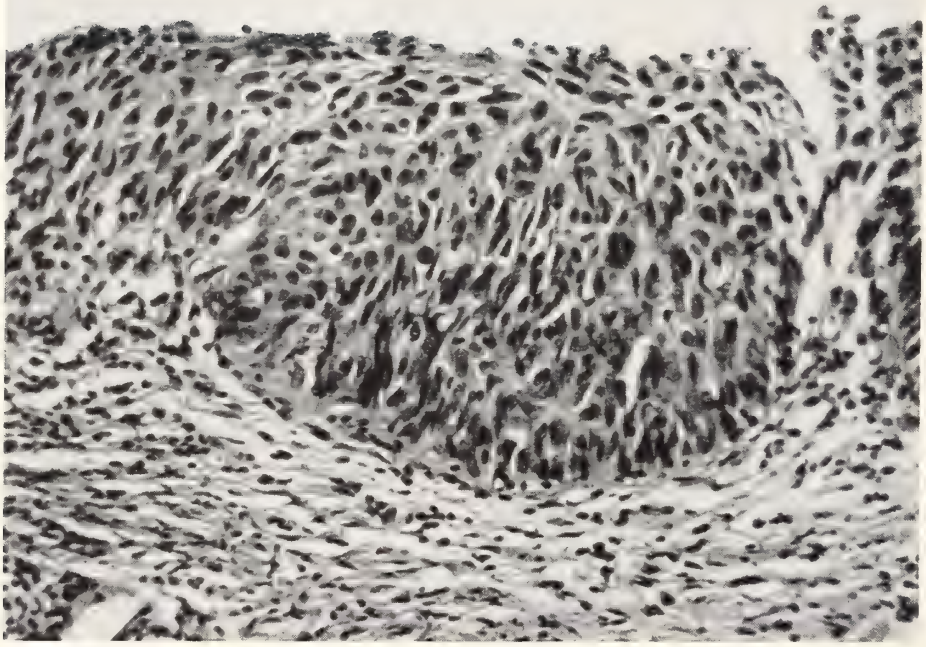


Fig. 4. The squamous cell carcinoma *in situ,* Grade 3, from which the malignant cells in Figure 3 were shed (hematoxylin and eosin×235).

In the detection of carcinoma of the uterine fundus, smears have not proved efficacious in our experience. One cannot reach the surface of the growth to secure material and cervical stenosis often prevents escape of the malignant cells into the vaginal pool of secretions. Moreover, the cells observed following exfoliation from fundal growths are so well differentiated, and so unlike those of cervical carcinoma, that the interpretation may be erroneous. In addition to this, the relative rarity of the lesion (fundal carcinomas are one fifth as common as cervical carcinomas), its early production of bleeding, its accessibility to the curet and its comparative curability, were factors which have influenced us to concentrate our efforts in the detection of early carcinoma of the cervix.

For those interested in planning a "screening" program for detection of carcinoma based on cytology of smears, certain other of our observations might be useful.

We do not intend that the smear should replace the biopsy. If the patient has an obvious carcinoma of the cervix, routine diagnostic biopsy is the proper procedure. Under these circumstances the smear serves no useful purpose except as a means to acquire experience in the reading of "positives." Biopsy always should be employed likewise to verify all positive and equivocal smears before any definitive treatment is undertaken. It is imperative that, during the procedure of "verification," except when the specimen of tissue includes a completely conized cervical canal plus the squamocolumnar junction, the postbiopsy cautery be applied with utmost reluctance. All too often the bona fide evidence of carcinoma of the cervix *in situ* has ascended in the smoke of such burnt offerings. This practice, like performance of dilatation and curettage prior to cervical biopsy in certain of our problem cases, has done injustice to the smear program.

Our technique in the taking of material for smears, and in the preparation and analysis of them, is similar to that followed by others, with certain minor modifications. Smears secured by scraping or wiping the squamocolumnar junctional area of the cervix seemed to give a higher concentration of cells than did swabbings from the lower vaginal pool.

In the earlier phases of our work, two or more smears were obtained in each case and smears were taken from many overt carcinomas, chiefly that we might gain experience. The limiting factor in the number of cases that can be screened is the time required for the necessarily thorough scanning of the slides. Hoping to learn that a single slide per case would be adequate, we reviewed the material from our first 100 positives. Malignant cells were present on each and all of the slides. Our current practice is to prepare one such slide of material obtained from each patient.

We adopted the standard hematoxylin (Harris) and eosin stain after a preliminary trial of the Papanicolaou technique. We believe that for the detection of malignant cells, hematoxylin and eosin is at least as good as the other more complex stain. The former has the added advantage of familiarity. Ninety-five per cent alcohol has proved to be an excellent fixative for the smears and it has reduced the fire hazard associated with the ether-alcohol mixture formerly employed.

It is impracticable for the pathologist to attempt the screening of a large number of cervical smears without the assistance of trained technicians. The troublesome and positive smears, as well as the biopsy material, must be analyzed by a competent pathologist. However, a well-trained technician is capable of handling the negative smears from a series of 5,000 women annually.

Discussion

Granted that the techniques we employed are highly valuable for the detection of carcinoma of the cervix *in situ,* one might now well inquire whether, and following what interval of time, these cytologic changes are succeeded by the development of clinical carcinoma in the organ. Jones, Galvin and TeLinde recently have summarized the available literature on this important issue. They found documentary evidence concerning 40 patients whose cervical carcinomas *in situ* had, under observation or by accident, been allowed to progress, and which eventually did progress into manifestly invasive lesions.

An average difference in age of approximately ten years between patients who exhibit carcinoma *in situ* and overt carcinoma of the cervix indicates that the lesion remains intraepithelial during this interval. The seven cases reviewed by Jones, Galvin and TeLinde support such a concept; these patients had carcinoma that remained *in situ* for periods ranging from one and a half to eight years. Galvin and co-workers are reported by Jones, Galvin and TeLinde to have reviewed material obtained long before at biopsy performed on thirteen patients who subsequently had clinical carcinoma of the cervix. In eleven instances the changes currently recognized as carcinoma *in situ* were found on review of the tissue originally removed. One exhibited basal cell hyperactivity and, in the remaining case, the specimen had been denuded of epithelium. Our own series provided circumstantial evidence that carcinoma *in situ* and invasive carcinoma of the cervix are one and the same process. Only one of our ninety-two patients had not been married. The rarity of invasive cervical carcinoma among unmarried women is well known.

There are, on the other hand, nine examples recorded in the literature wherein carcinoma *in situ* apparently has reverted to normal. In none is the possibility excluded that the biopsy, especially if followed by cauterization for hemostasis, did not destroy all of the original lesion.

Clinically applied, present-day importance of cervical smears can be illustrated by citing the experience of our Sections of Obstetrics and Gynecology during the first eight months of 1951. Excluding obstetrical patients, 7,960 new patients were examined and, of these, cervical smears were made of 5,459. The latter number of cases compose part of the series of 10,000 with which this paper is concerned. Fifty-two, or approximately 1 per cent, of the 5,459 patients proved to be shedding malignant cells from clinically undetected carcinoma of the cervix. Smears from only two patients, or approximately one in 2,700, were false negatives which might have led to the patient's dismissal had not detection of early carcinoma been made by other means.

It might be argued that simultaneous biopsy "made" the diagnosis of carcinoma in forty-three of the ninety-two patients studied and that the smear in these instances was merely a time-consuming diagnostic frill. Yet in three of these cases the first biopsy proved "negative" for carcinoma. Moreover, in thirty-two instances, biopsy was made, not simultaneously, only because the smear was positive. Furthermore, nineteen cervices which were described as "clean" or "normal" or "senile" presented no indication for biopsy prior to receipt by the clinician of the positive findings from the smear. For these reasons we are forced to conclude that a single smear is more efficacious than random biopsy in detecting early carcinoma of the cervix.

Summary and Conclusions

An effort has been made to delineate the clinical features which might assist in the selection of patients on whom cervical smears should be performed. It is apparent, as the data are reviewed, that patients who give positive smears are not clearly distinguishable, by symptoms or by physical signs, from the average "normal" controls. Pre-invasive and occasionally invasive carcinoma of the cervix may be asymptomatic or clinically undetectable, either or both. The cervical smear is positive for malignant cells in the presence of an impressively high percentage of these silent and invisable lesions. Finally, since invisibility is by no means a short-term characteristic of cervical carcinoma, the periodic "smear screening" of apparently normal women at annual, or perhaps at biannual, intervals becomes a very important aspect of preventive medicine.

References

1. Baillie, Matthew: Quoted by Ricci, J. V.: The Genealogy of Gynaecology. History of the Development of Gynaecology Throughout the Ages, p. 527. Philadelphia: The Blakiston Co., 1944.
2. Broders, A. C.: Carcinoma *in situ* contrasted with benign penetrating epithelium. J.A.M.A., 99:1670-1674 (Nov. 12) 1932.
3. Jones, H. W., Jr., Galvin, G. A. and TeLinde, R. W.: Intraepithelial carcinoma of the cervix and its clinical implications. Internat. Abstr. Surg., 92:521-524 (June) 1951.
4. Kulcsar, D. D.: A comparative study of vaginal smears and cervical cell scrapings in intra-epithelial carcinomas. Am. J. Clin. Path., 20:958-962 (Oct.) 1950.
5. MacCarty, W. C.: The cancer cell and nature's defensive mechanism. Surg., Gynec. & Obst., 41:783-793 (Dec.) 1925.
6. Wells, A. H.: Cytologic diagnosis of uterine malignancies. Minnesota Med., 34:975-982; 1006 (Oct.) 1951.

ARE GRIEVANCE COMMITTEES SERVING THEIR PURPOSE?

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IT SEEMS to me that the reasons for establishing and maintaining a grievance committee are three in number. First, in compliance with our Hippocratic oath and with our code of ethics as expressed by the American Medical Association, we are bound to make every effort to keep the practice of medicine on the highest possible level. Second, anything we may do in the way of policing our own organization will combat the adverse criticism that has flourished under the New Deal and the proposed Welfare State. Third, a concerted effort to mediate with the public, whenever real or alleged grievances are brought to our attention, constitutes the best type of public relations. It was recommended by the House of Delegates, in December of 1949, that committees be set up to hear, consider, and mediate genuine or fancied grievances, and thirty-four state medical organizations had set up such committees by September, 1950. These state committees may vary in the number of members, in the tenure of office, in the method of selection of members of the committee, but basically they are all striving for the same goal, namely to demonstrate to the public that, despite adverse publicity disseminated by the proponents of socialized medicine, the medical profession itself has a sincere desire to bring the best service to the greatest number of people. Since in many states the committees are young, they are sailing uncharted seas and each state must deal in its own way with any problems which are peculiarly its own; but all the committees are trying to demonstrate the awareness of the physician to his responsibility to his patient.

A Committee on Grievances, such as we have in Wisconsin, has, in my opinion, certain very definite responsibilities first of which is the responsibility to the public to supply it with the best possible medical care. This responsibility can be fulfilled by seeing to it that the ideals of the profession are upheld completely in the case of everyone practicing medicine: A huge task, no doubt, and one almost impossible to fulfill, but it is worth striving for. Secondly, there is the responsibility to the members of the medical profession itself. This committee examines complaints against the individual physician and, through the staff at the State Society's office, makes a thorough investigation as to the validity of these claims. When they are apparently valid, the complainant and the physician are given an opportunity to appear before the committee or to communicate with the committee and present their respective sides of the question. These are given deep consideration and, upon reaching a decision, the committee makes its recommendation to the Council of the State Medical Society of Wisconsin which body may recommend to the Board of Medical Examiners that the license of the offending physician be suspended or revoked; or, if in the opinion of the committee, the complaint is not valid or does not hold up under evidence produced by the complainant, the case is dropped and no action is taken by the Council. The Committee on Grievances in Wisconsin has no punitive power, but functions through the Council of the State Society. Another phase of the responsibility of the Committee on Grievances to the medical profession might well be considered educational, since it strives to make all members of the medical profession aware of their own responsibility to the public by observing to the letter and in the spirit all drug laws, by cooperating with the Pharmaceutical association, by working with the Bar Association on the matter of expert testimony in court, and by assisting existing government health agencies.

In discussing the functions of a grievance committee, the question of publicity arises. How much publicity should there be? In Wisconsin, the committee sent letters to judges, to health agencies, and to other organizations interested. In this last category, the Bar Association, which had made some queries concerning expert medical testimony, was especially advised of the formation of the committee and all were acquainted with its aims. To date, no complaints have been received from these groups, but the committee feels that this publicity was beneficial, since it

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made large groups aware of the existence of the Committee on Grievances and its willingness to work for the public good. In addition, there have been press releases announcing the formation of the committee and its objectives, so that the general public might be informed. The Committee on Grievances in Wisconsin is fully aware of the importance of absolute discretion on the part of its members so that unfavorable, or "gossip" type, publicity can be avoided. Every effort is made to keep all matters confidential, all cases are coded, and correspondence, except with the physician and complainant, is identified by code. It is essential that the existence and objectives of the committee be publicized 100 per cent among the members of the medical profession.

It has been asked, "What is the responsibility of the medical society to the physician who persists in a course of misconduct?" Our committee warns the physician that his case is being reported to the Council and that the Council will recommend a course of action to the Board of Medical Examiners. Punitive power rests with that Board and the committee can do no more than recommend through the Council. In short, the responsibility to the physician who persists in misconduct merges into the responsibility of the committee to the public.

The Committee on Grievances in Wisconsin does not function as a bill collecting agency. In my opinion, activity of that type would defeat the purposes of the committee by giving the public the wrong impression of its aims. The only economic phase with which our committee is concerned is that of the fairness of the charges made by the physician, and then only when it is drawn to our attention by a complaint, since we assume that in this day and age any right minded physician realizes the importance of fairness in the matter of bills.

I have selected three typical cases which have come before our committee, in order to give a clearer idea of the Committee on Grievances in action.

Case 1.—A child with a lacerated forehead was taken to a pediatrician during the absence of the family doctor. The pediatrician told the parents that he did not take care of this type of case and referred them to a plastic surgeon. The patient was hospitalized and three pieces of adhesive were used to bring the edges of the wound together. The pediatrician charged $15 for his advice, the plastic surgeon $50 for his call and $5 for each successive treatment. It was decided, after thorough investigation of the case, that treatment by the family physician would not have exceeded $10. This case is still pending. It is, however, typical of the overcharge claim that is made, although there are many times when a physician is accused by a patient of overcharging when the charge is just and the complaint arises from the patient's lack of knowledge of what the treatment entailed. Physicians have been urged many times to discuss possible charges with their patients before treatment so that there be no misunderstanding.

Right here it might be well to delve a little deeper into the whole question of fees and the necessity of frank discussion of the nature of his condition with the patient. Too often we hear that the doctor gives his patient too little information about the nature of his illness or, if he does make any attempt at explanation, couches this in scientific terms which leave the patient not only in the dark but with a feeling of frustration. It is highly important that the physician take the time to explain as simply as possible what the situation is. He should also point out the cost of treatment and plan with the patient how he may finance this, if it appears to be a burden. In discussion of this sort, frankness is essential. In the matter of fixing charges a doctor should consider several factors: the complexity of the job, the extent of the service necessary, and the ability of the patient to pay. A certain flexibility in adjusting his fees is often necessary when the patient's financial status makes average charges a burden. When the family doctor feels the services of a specialist are indicated he should explain this to the patient and also give him some idea of the probable charges of the specialist. In this way, many misunderstandings can be avoided and the patient will have a kindlier feeling toward the physician he knows has his best interests at heart.

Case 2.—A physician was charged by a score of people of being intoxicated while attending patients. The doctor appeared before the committee and investigation disclosed that he was suffering from multiple sclerosis and there was no indication of alcoholism. He was advised to stop the practice of medicine for the good of all concerned.

Case 3.—A general practitioner was accused of practices contrary to medical ethics and against the public interest. After appearing before the committee he was advised to consult a psychiatrist, who recommended that the physician enter an institution for treatment.

In addition, there are cases which are brought forward where there is evidence of promiscuous prescription of narcotics to addicts and others. This is often unintentional, but the committee stresses the importance of thorough investigation before prescribing narcotics and places the responsibility on the physician if this is not done.

Conclusion

In my opinion, the Committee on Grievances or the Grievance Committee, if you will, is the best instrument for implementing good public relations that organized medicine has at hand. It can do more for the public and for the physician than any other single committee within the Medical Society. Intelligent handling of medical-social and medical-economic affairs, accompanied by intelligent publicity, can do a very great deal to win and retain the confidence and esteem of the public. In its fair dealing, it bridges the gap formed by the natural reluctance of the patient to discuss his difficulties directly with his doctor and acts as a mediating board when differences arise. Members of the committee should be understanding, alert to the problems of the public and the physician, and they should be ever conscious of the paramount importance of discretion.

Since our committee has no punitive power, *per se,* it must rely upon the complete co-operation of every individual physician for its effectiveness. The fact that this committee, by its recommendations, may set in motion action which could result in suspension or revocation of a doctor's license, should act as a deterrent to that very small minority who might injure the reputation of the great numbers of conscientious members of the medical profession. In regard to the minority mentioned, we have in Wisconsin about 3,500 physicians, 3,000 of whom are in active practice. Each doctor sees at least one patient a day which would mean that at least 90,000 patients are treated in a month. The number of complaints which we have received is so small that the percentage of dissatisfied patients is infinitesimal, although it is conceded that that minute percentage can be very noisy on occasion, and, no matter how small it may be, the publicity accruing to one instance of poor or unethical medical practice makes it imperative that any committee on grievances must exert every effort to solve any question that comes before it to the satisfaction of those concerned.

Grievance Committees that function ethically and effectively will be a great factor in avoiding the political control of medicine and, in addition, they can and do protect the economic and professional status and freedom of the physician, by acting at all times in the best interests of the public. Only by proving to the people at large that our Hippocratic Oath is a living thing to us and that the desire to serve mankind, which prompted us to take up the practice of medicine, still motivates our lives can we combat the criticism which has been hurled at organized, free medicine by advocates of the Welfare State.

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GRANTS FOR RESEARCH

Life insurance companies of the United States and Canada will give more than $780,000 this year for research in heart disease, as announced in March by M. Albert Linton, Chairman of the Board of the Life Insurance Medical Research Fund.

The grants being made to medical schools and to individual scientists for heart disease research this year bring to $4,700,000 the total amount of money given by the life insurance business since the Life Insurance Medical Research Fund was organized late in 1945. The Fund is supported by the annual contributions of 141 United States and Canadian companies.

Included in this year's grants are fifty grants-in-aid, totalling $641,735, being given to medical schools and research centers for the support of heart disease research, and thirty-seven fellowships amounting to $142,100 going to young doctors to enable them to obtain training and experience in research.

The resources of the Life Insurance Medical Research Fund are devoted entirely to research on diseases of the heart and blood vessels, which are responsible for more deaths than the next five causes of death combined. Since the organization of the Fund, 185 research programs and 201 research fellowships have been supported, in ninety-two institutions all over the United States and Canada.

Grants to the University of Minnesota are: for research by Dr. Nathan Lifson on transcapillary exchange of materials in perfused organs, $16,200; for research by Dr. Maurice B. Visscher on cardiovascular renal physiology, $15,335.

THE DOCTOR'S RESPONSIBILITY TO HIS PATIENT

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THE doctor's responsibility to his patient is such a large one that I do not know just what your committee wanted me to discuss. Medical public relations places emphasis on the individual human relationship between doctor and patient. I thought perhaps a little homely review of some of the problems in patient-physician relationship, as I have encountered them in my few years of practice, might be enlightening. If they appear critical, I hope I will not be misunderstood.

I would like to tell you of my first personal experience of a patient-physician relationship, as it made an indelible impression on me and has been of great value to me. Having just graduated from the medical school, I decided to have a hernia operation by an excellent surgeon, a friend of my father, who referred all his surgical patients to him. On the third morning, postoperatively, I felt fine. The surgeon came to my room, looked at my chart, said a few words, and appeared unduly worried. Immediately after he left I called the nurse and asked her if I had a fever, or what not; I had quite a miserable time, emotionally for twenty-four hours, and like a real medical student reviewed all the possible complications that might develop, probably from a cerebral embolus to intestinal obstruction and everything in between. The next morning I asked the surgeon if there was anything wrong with me yesterday. When he assured me that I was progressing satisfactorily, I asked him why he looked so worried yesterday. He then told me that in the next room he had a patient, a mother with three children; he had done a thyroidectomy on her, and he was very worried and upset because he thought that she might die. This was a valuable experience to me, and I decided never to take my worries, by facial expression or otherwise, into a patient's sick room. We, as physicians, can instill into our patients the old saying, "Hope rests eternal in the soul," only by our actions, our attitude, our personality and our conversations. Fortunately, the physician of today realizes that he must treat his patient's illness not from the physical standpoint alone, but, what is fully as important and frequently more vital, from the emotional aspect as well.

Psychosomatic medicine, although it has been practiced by all of us since graduation, has become popularized during the past few years. I am sure that you will agree with me that it has stimulated us to practice better medicine, to study our patients as individuals with emotional reactions and not as a group of symptoms to be dismissed with a prescription and a statement "There is nothing wrong with you—go home and forget about it." If these patients could forget about it, they would not have to consult us. A true physician must be a good listener. The majority of our patients, as you know, suffer primarily from functional disorders, and even in the organic cases many functional and emotional symptoms present themselves. An hour spent in obtaining a careful history, with an attentive and sympathetic attitude, is frequently fully as important as our physical examination and the multitude of laboratory tests that we order. In our conference with him we can allay many of his fears and apprehensions. It may be his first operation, with all the dread of an anesthetic and the operating room. This may be time-consuming, but I can assure you his emotional reaction will be such that it will hasten his recovery. Let us not be too busy in our daily work.

The family physician has the great advantage over the specialist, in that he has extensive knowledge about his patients. Many of them he has known since birth. He is familiar with the family background, with the home environment, the school record, the mental peculiarities, if any, and the emotional set-up; in other words, he has a cross-section of his patient's life. He is the specialist in medical management and all that it implies. The family doctor has wisdom and vision, the ability to integrate and correlate findings, an understanding of human relations, a knowledge of when, where, and whom to employ for special skill, and when to do the work himself. Today, as throughout the years, he is the backbone of the medical practice, and his patient-physician relationship is more intimate than that in any other field of medicine.

Presented at the North Central Medical Conference, Minneapolis, Minnesota, November 11, 1951.

May I cite another interesting experience which I encountered: A woman, aged fifty, was referred to me because she had attempted suicide by jumping into a cistern. She suffered from an involutional melancholia, with all the fears, guilt feelings, religious worries and hopelessness characteristic of this illness. She was brought to the hospital by a nurse. As soon as I had entered the room, she dismissed her nurse, threw back the bedclothes, pulled up her nightgown, and with a terrified expression said, "Have I a venereal disease? If I have, I want to kill myself?" I covered her up and asked her to tell me her story. In brief, she had been developing her melancholia during the six months previous, and was advised by her physician to go to California, to recuperate. While she was in California, she met one of her former high school classmates. When she decided to return home, this man also went on the same train. On the way home they had sexual intercourse; she then developed a terrifying fear that she had contracted a venereal disease, and that is why she attempted suicide. I asked her why she did not discuss this with her family physician, who could have examined her and reassured her. She then said, "I could never do that and stay in my home town. His wife and I belong to the same bridge club, and he tells her everything." It is quite possible that her feelings about her home physician were delusional; they may have been, but, if true, this physician has deprived this patient, and probably others, of one of the most important patient-physician relationships—namely, the confidence in her physician. She has been deprived of the privilege to be able to go to him and unburden herself of her own worries, problems and anxieties, like she would to a father-confessor. Even the courts of our land hold sacred and recognize this, and protect us on the witness stand in this vital confidential patient-physician relationship.

It might be of interest, at this time, to refer to a brief article in the October, 1951, *Medical Economics,* entitled "Bad Manners of M.D.'s Gripe Patients Most." "It isn't exorbitant fees that raise the patient's hackels and send him running to the Medical Society Grievance Committee; the biggest trouble is just plain lack of medical etiquette." The Grievance Committee of the Iowa State Medical Society has investigated thirty-eight cases since it was organized in May, 1950. According to *Medical Economics,* the three most frequent complaints were: (1) talking to the patient too freely about another doctor's treatment or charges, (2) talking to another doctor, within earshot of the patient, about prognosis, severity of the case, finances or medical reputation, (3) failing to exercise diplomacy and tact in refusing to accept a case, make a house call, or okay an emergency prescription. Judging from the experience of this committee, we physicians as a whole either talk too much or unwisely. In this connection, it might be worth while to again remind ourselves of the fact that a great number of malpractice suits have their beginning in some slighting remark made by a physician about the care given to the patient by a former physician. This is not only detrimental to the patient-physician relationship, but expensive to the medical profession.

In lecturing to medical students, I have frequently devoted the first five or ten minutes in discussing with them problems encountered in the private practice of medicine. Unfortunately, medical students obtain very little such instruction in their curriculum. I have emphasized to them that in their private practice they will not be able to satisfy or please every patient; also that patients are not married to them and have a perfect right to another physician. If the patient or the family have lost confidence in their physician it is better for both of them to part company and it is very important to do it gracefully. Suggesting consultation may help to solve this problem or, in difficult cases, may assist in the diagnosis and treatment and undoubtedly help to share the responsibility. The consultant's attitude should be one of co-operation and assistance. His first duty is the patient. If he does not agree with the diagnosis or treatment, he should feel free to discuss this *first* with the attending physician, before talking to the family. His second duty is just as important, namely, not to say or do anything which might in any way lessen the patient's confidence in his *own* physician. He is usually the family doctor and has administered to the family for years. His third duty, if he is asked to take charge of the case either locally or in a distant town, is to advise the family physician at frequent intervals as to the patient's progress. When the family consults him, he can then discuss the patient's progress intelligently, and the patient also realizes that her own physician is

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INTERPRETATION OF MEDICAL CARE COSTS

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IF I INTERPRET correctly the assigned subject "Interpretation of Medical Care Costs," I am to discuss ways and means for impressing in the minds of laymen that the terms "medical care" and "medical care costs" are all-inclusive rather than implying, as some have, that they are the fees charged by the physician. Certainly, these terms cover the overall cost of illness, including physician's and dentist's fees, nursing care, hospital bills, fees for laboratory services, dressings, medicaments and other miscellaneous charges having to do with the care of sick people, but I believe the expression "total medical care costs" would better serve the purpose.

"My doctor bill" is the term that has always irked me when used in reference to total medical care costs. All too frequently, the flat statement "my doctor bill was so and so" is made without elaboration, and those listening are left with the impression that the stated charge representing the overall cost for medical care is only the fee charged by the physician.

How did the term "my doctor bill" come into being? It is not so many years ago that the cost of medical care had to do primarily with the physician's fee. People during that era believed that the hospital was the court of last resort, and if the physician recommended hospitalization there was no hope for recovery. Therefore only a comparative few were admitted to hospitals, preferring to stay at home for medical and nursing care. Thus it may be seen that the greatest item in total cost of medical care as of today entered only infrequently into the cost during that period and when it did, it was for only a small percentage of the total. In those days the cost for nursing care was low, fees for the few laboratory procedures were nil, roentgenology was a diagnostic tool still to come, medicaments were relatively few, low in cost, and usually were supplied by the physician. Compare this with conditions as they are today. In the past, sick people revolved around a focal point—the physician—whereas today, including the patient's personal physician, a team of consultants, nurses and technicians revolve around the patient. Recognizing the reasons for the origin and wide usage of the term, is it any wonder that it has carried on down through succeeding generations even though the aforementioned changes have taken place? The medical profession should see to it that this term is relegated into the limbo of lost words.

Other sources of misstatement of facts are found in newspaper and lay magazine articles having to do with the so-called high cost of medical care written by authors who are desirous of "giving people what they like to read" rather than the true story. Almost every day there are news items regarding someone, usually a child, who has a serious ailment, is unable to procure the services of a physician because of lack of money and must wait until friends and sympathizers contribute to a fund which will cover the "doctor's bill." Here again "doctor's bill" is a misnomer, the implication being that the physicians would not serve the individual even though he or she is in dire need of medical care. The movies also lend their aid to this misconception in much the same way. Last, but far from being the least, we have the Federal Government disseminating ideas through press, radio and pamphlets (the write-ups by the Ewing ilk and paid for with the money we ooze for taxes), which may be of value from the political standpoint but which too frequently place the physician in the role of Shylock.

Certainly something should be done to counteract false impressions fostered by such terms as "my doctor bill," if adverse publicity and public relations between physicians and their patients are to be improved. Who is to do it and how will it be accomplished? It seems natural to me that we should look to ourselves as the spearhead for such a campaign.

Statistics showing the breakdown in cost of medical care are plentiful, but I would like to quote the latest that I have seen, which were released recently by the Labor Department's

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Bureau of Labor Statistics. This report covers a period extending from the outbreak of the Korean War in June 1950 to the first of January 1951. During these six months the general cost of living rose 5.1 per cent; that for overall medical care, excluding drugs, 2.3 per cent; prescriptions and drugs 2.5 per cent; general practitioners' fees 1.1 per cent; surgeons' and specialists' fees 1.2 per cent; and hospital rates 4.9 per cent. It may be seen that the increase in the overall cost of medical care, except possibly that for hospitalization, is minor when compared to the overall increase for subsistence and shelter.

It would be wise for physicians to cite these figures to patients who complain about the increase in physicians' fees, and when so doing, to emphasize the many services included in the total cost of medical care. He might point out also that any increase in fees that he may have put into effect are not comparable to the increased overhead that he now carries, including rent, salaries to office personnel, cost of apparatus, instruments, medicaments, supplies and spiraling taxes.

As to the physician's fee, this should be discussed with the patient prior to rendering service. Many patients request such information and too frequently the physician evades the question. If in the mind of the patient the physician's fee might be $100 and he is presented with a bill for $200, is it any wonder that he is displeased and embittered? Physicians dealing in general practice and certain specialties—such as internal medicine, pediatrics, neuropsychiatry—find it hard to state an exact fee inasmuch as the overall services are dependent upon history and physical findings. A definite fee should be stated, however, for history taking and physical examination. It should be explained that if physical findings indicate that roentgenographic studies, blood chemistry or other procedures are necessary to make the diagnosis, the total cost will mount. Under such circumstances a cost estimate should be made before the service is rendered. Those dealing in more exact specialties, such as surgery, roentgenology, laboratory examinations, should have no difficulty in citing a specific fee to the patient which would be all-inclusive. In setting his fee the physician should take into consideration the overall cost to a patient who has to have the services of consultants, possible surgery and hospitalization, and temper his fee accordingly. Certainly the true physician will asecrtain what the individual patient may or may not be able to pay. For instance, knowing that the patient classifies as an indigent, the physician is wasting good paper and ink when he makes a charge comparable to that made for patients in even moderate circumstances. Itemized statements from physician to patient are valuable in breaking down any possibility of misunderstanding.

The great majority of patients when speaking of their physician's fee can do so, I believe, without rancor. It is only those served by the so-called iniquitous one per cent of physicians who have a just claim to having been victimized. We still have these physicians with us and I suppose we will always have a certain number, but every effort should be made to re-indoctrinate them with the teachings of Hippocrates. These few physicians can do more harm to the medical profession and its public relations program than all the good works of all the other physicians combined. Committees set up by the respective state medical societies, be they called grievance committees or committees on ethics, have a grave responsibility to ferret out all evidence pro and con when patients complain in writing that they have been overcharged. The experience of these committees indicates that the majority of complaints relative to exorbitant fees charged by physicians are based on misunderstandings, and incidentally the misunderstandings too frequently have been shown to be due to the fact that the physician did not give the patient an idea of what his charge would be before rendering the service.

The whys of the precipitous increase in cost of hospital care should be explained to the patient. Here again, demands on the hospital by physicians and patients have necessitated implementation of all services, from administration on down to laundry and utilities. The patient in the hospital today is receiving, by necessity because of advances in diagnosis and treatment, more attention than ever before. All of this calls for increased professional and nonprofessional personnel, which means more salaries, and with the trends, higher salaries. The patient should be informed, too, that although the cost of illness has increased in dollars and cents over that of some years ago, time lost from work has been considerably decreased, resulting in an actual saving for them. In other words, the hospital rate twenty-five years ago averaged $5.00 per day but the hospital stay averaged thirty days. Today the per diem charge in the hospital may average $15.00 to $17.00 but the average stay in the hospital is seven or eight days, due to the advances made in diagnosis and treatment. It may readily be seen that the total cost today approximates that of twenty-five years ago, but the days of illness and loss of time have been reduced by approximately 75 per cent.

It might be pointed out also that food purchased in 1940 at a cost of $100 now costs $251, that textiles purchased in 1940 at a cost of $100 now cost $231, that drugs and prescriptions costing $100 in 1940 now cost $182. All in all, there has been an increased cost in living, and I include under the term "living" everything necessary to life. The spiraling costs for labor have affected everything we do and everything we buy. The crude product costs no more than it ever did, but to extract that product from Mother Earth, fabricate and deliver it to the consumer has multiplied at least threefold while the dollar has been devaluated over 50 per cent. A person who is bitter because the hospital per diem charge is $15.00 does not blink an eye when he finds that the same hotel room that he had paid $5.00 for a year ago is now $8.50 per day. Add to this the cost that the hotel guest must pay for meals and it is apparent that the costs are comparable—except that the hotel guest does not have the ministrations of a nurse.

Too often we see releases in newspapers, articles in magazines, hear radio quips and government propaganda which give misleading statements regarding physicians' fees as they relate to total cost of medical care, and although we may frown, we do little or nothing to counteract the charges. There is no doubt that unfair statements, some of which could be characterized as bare-faced lies, influence the average layman in his thinking. Organized medicine, from the national to the local level, must take upon itself the screening of these releases. The American Medical Association is doing that now to a certain degree. I know of no state or local medical society which maintains a function of this character. Why should we not have, especially in our state organizations, a clipping service for articles relating to medical care costs. These articles could be turned over to a screening committee and it would be the duty of this committee to answer such articles and see to it that the answers receive wide publicity.

This is not sufficient, however. Every physician should act as a committee of one to be on guard for such disparaging items and remarks, and do everything in his power to quell further spread of these false statements. When such an item appears in a newspaper, the local physician or physicians should call upon the editor, give adequate explanation as to why the particular article is offensive or without truth, and request comparable space for clarification.

These are but some of the methods, as I see it, which if put into effect would be most helpful in breaking down charges made through habit-thought, prejudice or ignorance, and in so doing would rid the profession of unjust stigmata.

It seems to me that the term "my doctor bill" and all that it embraced in the past is to a certain degree fading out of the picture. This I believe is due to the fact that patients today are receiving separate statements from physician, consultants, laboratories, hospitals, et al, and this makes the patient realize that his physician's fee is but a part of his total cost for medical care. Another potent instrument in driving home this fact to many is voluntary prepaid hospital and sickness insurance. Here again the allowances for medical, surgical and hospital care services are publicized and in the great majority of instances broken down to show the amount allowed for medical and nursing services as well as hospital benefits. An increasing number of physicians are discussing the subject with their patients, and when they do they speak in terms of "my fee will be, your nursing fees may be about such and such and your hospital bills about so and so."

Continued publicity about differentiations between fees and the knowledge the layman is gaining through the aforementioned channels is doing much to break down a terminology which has been used not maliciously but thoughtlessly.

I would like to suggest that the Pubilc Relations Committees of our national, state and local medical societies be urged to make this entire problem one of their major projects, to the end that collectively and individually they may eradicate one of the sources which militate against improving patient-physician relations.

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THE GROWTH OF PREPAID MEDICAL CARE PLANS

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BEFORE delving into detailed data regarding the current status and recent developments of Blue Shield Plans, it might be well to spend a moment describing the background and organizational relationship between Blue Shield Plans and the medical profession.

At the Interim Session of the House of Delegates of the American Medical Association in December, 1945, a ten-point program was adopted, one portion of which gave American Medical Association endorsement to the principle of voluntary health insurance. Following the adoption of that policy statement, the AMA Board of Trustees and the Council on Medical Service took steps to establish a national organization of medically sponsored prepayment plans in operation at that time.

Out of the conferences between the Board of Trustees, the Council on Medical Service, and representatives of the medically sponsored prepayment plans, there was chartered in Illinois in March, 1946, a nonprofit association known as Associated Medical Care Plans.

The principal reason for Associated Medical Care Plans being established as a separate corporation was the then recent experience of the American Medical Association in a Supreme Court hearing, and several tax litigations, following which it was felt that such an organization as Associated Medical Care Plans and its intended functions could be best carried out through an independent corporation, rather than for such activities to be carried on by the American Medical Association iteslf.

Nine prepayment plans became the charter members of Associated Medical Care Plans in March, 1946. In December of the same year, nine additional Plans had applied and had been admitted as members of the association, and national headquarters and staff were established in the AMA headquarters building in Chicago.

As indication of the growth in member Plans, it can now be reported that the original nine charter members have been expanded to seventy-eight member plans, operating in forty-two states, the District of Columbia, Hawaii, Puerto Rico, and eight Canadian provinces.

Since the association was established in 1946, a brand label, known by the name Blue Shield and visualized by the Blue Shield symbol, was adopted in 1948 and is now in general use among the seventy-eight member plans of the association. At the present time the entire movement is known rather widely by the American public as the Blue Shield Plans. Appropriately, the name of the association was changed, in the early part of 1950, from Associated Medical Care Plans to Blue Shield Medical Care Plans.

Membership standards have been adopted by Blue Shield Medical Care Plans and any medically sponsored plan wishing to become a member of the association must meet those membership standards before acceptance by the association can be assured. In addition to standards calling for efficiency of operation, conformity with general standards of good insurance practice, and integrity of operation, these standards call for free choice of physician, sponsorship or approval by the medical society in the area served by the Plan and operation on a nonprofit basis.

With very few exceptions, the Blue Shield Plans include in their membership practically all of the medically sponsored programs for the prepayment of medical care.

Blue Shield Medical Care Plans is governed by a commission, known as the Blue Shield Commission, elected by the Plans themselves. The Plans are divided into eleven districts, with each district electing two members to the Commission, one representing the executive directors and the other representing the governing boards of the Plans in the district. In addition to the twenty-two members of the Commission thus elected, there are at present three Commission members elected at large, those three being Dr. Paul R. Hawley, Director of the American College of Surgeons, Dr. Charles Gordon Heyd, President of United Medical Service in New York and former President of the American Medical Association,

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and Jay C. Ketchum, Executive Vice President of Michigan Medical Service.

At the next annual meeting of Blue Shield Plans, to be held in San Francisco in April of 1952, five additional members at large will be elected, having already been nominated by the Blue Shield Commission according to the provisions of the By-Laws, and including Doctors A. J. Offerman, Omaha; R. L. Novy, Detroit; L. Howard Schriver, Cincinnati; Carlton E. Wertz, Buffalo; and Paul R. Hawley, Chicago.

The national association is strictly a voluntary matter as far as affiliation is concerned. It has no supervisory or disciplinary authority, insofar as its member Plans are concerned, except for the right to determine whether or not a member Plan has continued to comply with the membership standards which constituted the basis for the Plan's original acceptance as a member. The principal functions of the national organization are comparable to those of a trade association, in which the national organization seeks to render services which are beneficial to and of mutual interest to the member Plans. In this sense, it might be said that the national organization serves as a co-ordinating agency. It might also be described as an organization which serves as a "clearing house" of information and the sponsor of conferences and activities calculated to serve the needs of the member Plans.

It is always of interest to those who are only slightly acquainted with Blue Shield to know something about the accomplishments of these Plans in enrolling members.

At the end of the year 1950, the total enrollment among the American people for hospital coverage written by nonprofit agencies as well as commercial insurance carriers, reached 76,961,000, which was a gain of 17 per cent over the preceding year. Of these nearly 77,000,000 people, approximately 54,500,000 had also purchased protection for surgical benefits, amounting to a gain of 32 per cent over the preceding year, and 21,500,000 had purchased protection for medical care, which was a gain of 28 per cent over the preceding year.

Figured into the totals indicated above was an enrollment of 38,822,000 in Blue Cross for hospitalization coverage, or approximately 50 per cent of the total number of persons protected for hospitalization. Medically sponsored nonprofit Plans claimed a membership of 19,690,000, or approximately 37 per cent of the total number of persons protected for surgical and medical benefits.

It gives me a great deal of pleasure to announce the fact that Blue Shield Plans alone, exclusive of other medically sponsored organizations, are able to say that, as of September 30, 1951, there were 21,000,000 persons enrolled by Blue Shield. On next Tuesday evening, November 13, we will be celebrating that fact at a dinner party in the new office building of the Minnesota Blue Cross and Blue Shield Plans, when a certificate will be awarded by the Blue Shield Commission to Miss Rosemarie Hart, a stewardess employed by Northwest Airlines, who has been selected as the 21 millionth Blue Shield member in the United States and Canada. At the same time, we will have the additional pleasure of presenting another certificate to an employe of Northern Ordnance Company as the 500,000th member of the Minnesota Blue Shield Plan.

I might add, parenthetically, that the Minnesota Blue Shield Plan has made one of the most enviable records of any Plan in the United States, having begun enrollment only four years ago and having accomplished in the space of four brief years the enrollment of more than one-half million members in Minnesota.

It might assist in the visualization of this rather phenomenal enrollment picture to reduce this accomplishment to working day figures and tell you that Blue Shield Plans throughout the United States are adding more than 28,000 new members every working day.

Among some of the more significant groups to be added to Blue Shield during recent months have been the employes of U. S. Steel Corporation, Bethlehem Steel Corporation, Republic Steel Corporation, and the vast DuPont industrial empire. During the third quarter of 1951, Blue Shield, by virtue of the enrollment of U. S. Steel and Bethleman alone, added more than 1,100,000 members.

Some of you will be interested in a brief progress report on the development of National Blue Shield Service, Inc., as a national enrollment agency for Blue Shield Plans. I believe you will be interested because of the controversy which surrounded the original proposals of nearly three years ago, when it was first suggested that such an agency might be formed for the purpose of assisting Blue Shield Plans in the enrollment of large national accounts.

Even though the American Medical Association expressed opposition to the original proposal, which was a suggested stock insurance company to be formed by Blue Cross and Blue Shield jointly, and later expressed a feeling that Blue Shield should be allowed to use its own good judgment when it proposed to establish its own national enrollment agency, quite apart from that being formed by Blue Cross, the Blue Shield Plans proceeded with the latter proposal, raised $383,000 among themselves, and received a charter in the State of Ohio for National Blue Shield Service, Inc., in December of 1950. The company was granted a license to do business in Ohio in May of 1951, and is currently applying for licenses to do business in additional states. The agency is not yet prepared to serve its original purpose, nor to do business, but it is expected that before the end of this year it will be in a position to fulfill its intended function.

Financially speaking, the Blue Shield Plans have shown equally phenomenal progress, as evidenced by their rapid increase in enrollment. During 1950, the Blue Shield Plans had a national income in excess of $150,000,000 of which approximately $116,000,000 was paid to the physicians for more than 7,000,000 professional services rendered. The amount paid to physicians was approximately 79 per cent of the total income, with approximately 13 per cent being used for operating expenses, and the remainder being held for reserves.

On the basis of reports for the first six months of 1951, the Blue Shield Plans will have a total income this year of approximately $240,000,000, with somewhere in the neighborhood of $200,000,000 being paid to physicians for professional services.

Financial reports for the first six months of 1950 indicate that utilization has increased from 79 per cent to approximately 82 per cent, and operating expenses have been reduced from 15 per cent to approximately 12 per cent.

One of the unique characteristics of Blue Shield Plans, as contrasted to the offerings of the commercial insurance industry, is the principle of service benefits.

Service benefits are best described as a provision in the subscriber certificate which guarantees to the subscriber that, if his or his family income is within certain prescribed limitations, the attending physician will render professional services for the fee set forth in the Plan's fee schedule without any additional charge. This puts Blue Shield Plans in the position of offering to millions of American people the privilege of exchanging premium dollars for medical or surgical services without red tape or additional bills from the attending physician.

This principle has been subscribed to by the majority of physicians in the United States to the extent that fifty-eight of the seventy-eight Blue Shield Plans are able to offer these benefits to their subscribers within certain income limitations.

There is no longer any doubt about the level of public interest or demand for such benefits, once the principle has been established and becomes familiar to the subscriber.

The inclusion of the service benefit principle in the operation of a Blue Shield Plan has raised and will continue to raise several important problems as far as the physician is concerned. The first question to be met is the degree of willingness on the part of the individual physician to accept the principle and sign an agreement indicating his willingness to participate. Beyond that point, however, are the broader questions of medical control over the Plan to which a physician is asked to commit himself, and the safeguarding of professional and ethical standards in the administration of the Plan which proposes to offer professional services to the public on a service basis.

The medical profession, individually and collectively, has not yet fully made up its mind regarding the service benefit principle, but there has been established during recent years a very definite trend toward its increasing acceptance.

To the degree that the service benefit principle is accepted universally by the profession and offered to the American public through the instrument of Blue Shield Plans, will Blue Shield fulfill its unique function, serving both the public interest and that of the medical profession in its effort to solve the problem of medical costs and forestall the threat of federal control over matters of health.

It might be of interest to cite the fact that there are approximately 1200 board members serving on the boards of these seventy-eight Blue Shield Plans, of which more than 750 are doctors of medicine. Although the average ratio is two physicians to one non-physician, there are still some Blue Shield Plans in which the medical profession is not sufficiently represented to assure the doctors of the kind of control to which they believe they are entitled. In approximately the same degree in which the doctors do not have a feeling of complete confidence and control will one find that service benefits are not acceptable or not likely to be for some time to come.

As a summary of the present status of service benefits among Blue Shield Plans, let me repeat the fifty-eight of the seventy-eight Blue Shield Plans are offering service benefits to the American people on some basis. A few of these Plans have no income limits for the determination of eligibility, but offer the services of the profession to any subscriber regardless of income. The majority of these fifty-eight Plans, however, offer service benefits to subscribers whose annual incomes fall within established limits, which range from $1,800 for the individual subscriber to as high as $6,000 for the family.

More than 115,000 physicians have signed participating agreements with Blue Shield Plans. The average rate of participation on the part of physicians, with Plans offering service benefits, is 87 per cent of physicians in active practice.

There is a trend among Blue Shield Plans toward the increase of income ceilings within which subscribers will be eligible for service benefits. These increased income ceilings represent, not so much a change of attitude or policy on the part of the medical profession, but an adaptation by the Plans to the economic facts of life, particularly those which have been caused by the period of inflation through which we have been living.

A Plan which several years ago offered service benefits to subscribers whose incomes were less than $3,000 per year for the family was making an offer that encompassed perhaps 65 or 70 per cent of the population. Today, those same income limits would exclude all but a small portion of the population, and the increases in income ceilings have been made in order to restore eligibility to the same portion of the population as was originally eligible some years ago.

One of the important trends among Blue Shield Plans at the current time is the trend toward new types of coverage, usually of a more comprehensive nature.

It must be admitted that competition between Blue Shield and commercial insurance carriers has been forcing a great deal of this expansion in terms of benefits and additional coverage. To a large degree, however, public acceptance of the principle of health insurance and public demand for more comprehensive coverage have accounted for a greater portion of the expansion which has taken place in recent years.

The chief limiting factors on the expansion which has taken place, or which might be expected to occur in the years to come, are the fundamental principles of insurance by which all Blue Shield Plans must be guided, and the period of time required for experimentation and acquiring of experience data on new types of coverage. The expansion of Blue Shield into more comprehensive types of protection is based upon mathematical calculations. Such calculations cannot be made without adherence to certain established principles of insurance and controlled experience in the development of data upon which such calculations can be projected.

The two most significant types of expanded benefits which have been introduced recently are those which have ventured into the field of catastrophic illnesses and those which are being projected into the realm of deductible certificates, in which the insured member pays an initial amount for services rendered, after which the Plan's benefits become effective. The latter is comparable to the familiar type of automobile insurance that all of us have purchased during recent years.

Every doctor is familiar with the problem of hospital-physician relationships, such as have been highlighted by the Hess Report recently adopted by the American Medical Association. Blue Shield Plans, acting through the Blue Shield Commission, have expressed themselves as feeling that Blue Shield should not become a party to such controversies and, further, that Blue Shield should not permit itself to be used by either one or the other party to such a controversy in forcing its objectives upon either the hospitals, doctors or the public.

It has been expressed frequently, in Blue Shield circles, that the controversy between hospitals and doctors will have to be settled by the two parties directly concerned, and that, once an agreement has been reached, the policies and practices of

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HOSPITAL ADMINISTRATION AND THE MEDICAL STAFF

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IN discussing this somewhat delicate subject of the relationship of the hospital administrator and the medical staff, I will make every attempt to present it in as unbiased and impartial a fashion as possible—difficult though this may be. I will at least attempt to reflect the same honesty as was shown by a fine old gentleman of the Confederacy who once wrote a book which he entitled "An Unbiased History of the Civil War from the Southern Point of View."

In addressing you here, I will use the pronoun he in referring to the hospital administrator. In so doing, I conform with a basic rule of grammar with which you are familiar and for no other reason. Women play an important role in the field of hospital administration. Many of our hospitals, including those operated by Catholic orders, are well administered by women, so it is by no means a man's field. And perhaps this is well, for women bring to this specialty a graciousness and tolerance that it needs. These are qualities that too frequently are lacking in man. Here at St. Mary's you are blessed with an administrator who possesses these graces, and you are indeed fortunate. Your hospital as a consequence reflects a personality that extends far beyond your city. Such reputations are not easily come by; they are created by the daily devotion to an ideal and a creed that spells service to the community.

James F. Bender, director of the National Institute for Human Relations, describes the ideal hospital administrator as a person who must possess the friendliness of a General Eisenhower, the brains of a Herbert Hoover, the power of expression of a Winston Churchill, the resilience of a President Truman, the energy of an Eleanor Roosevelt, the spirituality of an Albert Schweitzer, and the eagerness to heal of a Sir William Osler. Is it any wonder that a good hospital administrator is hard to find?

You as a medical staff and I as a hospital administrator have many reasons to regard each other carefully as we do our daily work. To be successful in our task we must carry on with the thought that we play on the same team. Our problems then become our mutual concern, and we should try to solve them together. Sorry indeed is the hospital where the administrator, in evaluating his many problems, places his medical staff at the head of the list. If he does so, the blame may be his as well as the staff's, but most likely it is the fault of both. Ofttimes it is diffcult for both parties to clearly see the same goal, or in seeing it to achieve it by the same means.

It is my impression that a hospital serves its purpose when it provides the best and most complete medical care for its community at the lowest possible cost. You and I have our individual responsibilities in providing this type of service. Just what are they?

First as to the administrator. He should try to instill in his personnel a feeling of humaneness and kindness. He can receive no higher compliment than to be told his hospital is a friendly one.

> So Many Gods, So Many Creeds;
> So many ways that wind and wind;
> Yet just the art of being kind,
> Is all the sad world needs.

Edna Wheeler Wilcox, who composed these few lines many years ago, has given us our challenge.

But being kind and considerate isn't enough. The hospital administrator today combines kindness with firmness to insure that proper procedures are carried out at the patient's bedside; to assure you that the nurses, practical nurses, attendants, aides and maids carry out their duties as best they can; to assure your patients of receiving the care prescribed by you in the order book. Furthermore, your patients are entitled to top quality food, prepared well and attractively presented.

The diagnostic services of the laboratory and x-ray departments must be geared to the needs of the staff. The pathologist must be alert to the newest in diagnostic aides and then make them available to the staff. The roentgenologist, in addition to providing top quality films and accur-

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Dr. Klicka is director of St. Barnabas Hospital, Minneapolis.

Read at the annual meeting of the medical staff of St. Mary's Hospital, Duluth, Minnesota, February 7, 1952.

ate interpretations, must also offer the latest in therapy. The pathologist and roentgenologist more often than not determine the quality of medical care in a hospital. It is frequently their responsibility to set the standard of practice. It is within their scope to lead.

Hospital service is expensive, but it has always been so. Perhaps it seems more so now than ten to fifteen years ago, but actually this is almost entirely relative. Drugs make up a sizable portion of the total hospital cost today, and they are more expensive than the simple pharmaceuticals of earlier years, but largely because of them our patients recover more quickly and consequently spend fewer days in the hospital. The disease that may have kept a patient in the hospital three weeks ten years ago can now be cured in a week. Our personnel are better paid today than was true before World War II, and this change was long overdue. An administrator friend of mine has put it well by saying that hospitals are not only having to keep up with the present inflationary cost of living trends but also have had to escape from the Old Lady Bountiful attitude of providing a starvation wage and promising a future golden harp and a special cloud in heaven. Our employes are more sophisticated now; they prefer to eat today and worry about the harp later. The hospital administrator cannot disregard the needs of his employes any more than his trustees can overlook the salary requirements of employes in their own private enterprises. Unfortunately the hospital administrator cannot perform miracles in creating a fund from which money for salaries can be drawn. Higher charges for hospital services and efficient operation are the only answers.

In approaching the purchase of a new car, a man naturally compares its price to that he purchased five years ago. This applies to those few among you who can wait that long to change models. The price increase in this short span is enough to shake one somewhat. The car salesman never apologizes for this increase, however, but merely points out that the new car is worth more. The same can be said for your patient's hospital bill. Of course it is high but it is worth it. If ever a commodity was worth its cost, it is present-day hospital care. Although the cost per day of hospital care has risen considerably in the past decade, the cost per illness has not. Recent studies which take into consideration the shortened hospital stay and relative purchasing power of the dollar show quite convincingly that in comparing the three-year span of 1948, 1949 and 1950 with that of 1938, 1939 and 1940 the increased cost per admission is only 11 per cent. It should be an easy matter for any of us to demonstrate that there has been much more than an 11 per cent increase in the scope and value of the service that a hospital is offering its community today. Furthermore, this small increase is more than offset for the wage earner who returns to work more quickly than was true ten years ago, thereby significantly reducing his loss of earnings because of his illness.

The rising cost of hospital care was recognized as a threat to our voluntary system of hospitals as long ago as 1929. This recognition led to the idea that hospital care could perhaps be prepaid, thereby becoming less of a burden to anyone who was hospitalized. Blue Cross was the name applied to this idea, and as we look back over its twenty-two-year history with some pride we see the justification of the effort that went into its development. By 1940 the number of individuals throughout the country covered by Blue Cross slightly exceeded 6,000,000. The next ten years saw an amazing growth and at the end of 1950 the number of subscribers was 39,000,000. Commercial insurance companies recognized an opportunity for service in this field and became very active. In 1940 approximately 4,000,000 people were covered either by group insurance or an individual policy. In the ten years ending with 1950 this number increased to 40,000,000. By the end of 1950, allowing for duplication of coverage by Blue Cross and commercial insurance companies, the total number of persons covered against hospital expense exceeded 77,000,000. More than half the population of the United States are therefore protected against the unexpected expense of a hospital bill. By states, the proportion of population covered varies somewhat over the country. By the end of 1951, 1,000,000 persons were covered by Blue Cross in Minnesota or approximately 33 per cent of the population. Unfortunately exact commercial insurance figures are not available. Such insurance is quite popular, however, especially in the larger metropolitan areas of the state. Again allowing for duplication, it is estimated that 60 per cent of the population of Minnesota is covered by these two forms of hospital expense insurance.

While the prepaid hospital care plans were developing, the surgical-medical expense plans were also coming along. In 1940 only about 2,500,000 people were covered with some form of surgical expense policy. In the next 10 years the number covered by commercial group insurance companies showed a gain of nearly 20,000,000; the Blue Shield grew at a similar pace and also covered 20,000,000 individuals by the end of 1950. The number of persons covered under individual policies increased by 13,000,000. The total number of individuals covered with some form of surgical expense insurance in 1950 was 54,500,000.

Medical expense coverage is also growing. In 1950 the number of individuals covered exceeded 21,500,000, of which 11,500,000 were covered by Blue Shield.

And to those who may believe that the peak in voluntary enrollment in prepayment and insurance plans may now have been reached, the 1951 figures will be interesting. Although exact tabulations have as yet not been completed, the best estimates show that well over eighty million Americans (perhaps as many as eighty-five million) now carry hospitalization insurance. Some sixty million are also insured against surgical costs; some twenty-five million against medical costs.

Are we going to have socialized medicine in this country? A fair evaluation of the figures I have given you leads me to answer a firm *no* to this question. The tremendous rise in voluntary health coverage reflects the growing desire of the American people for protection against the economic hazards of sickness and accident through plans of their own choosing. We in the hospital-medical fields are definitely in high gear and are approaching the crest of the hill labeled "total voluntary health coverage of the population." The steepest part of the grade is definitely behind us. Henry J. Kaiser phrased my *present* attitude on this for me a few weeks ago when he said "Since you can't be clairvoyant, you've got to be optimistic."

One important fact must never be overlooked, however. Although we have come a long way in a short time, our progress must be protected. It is you, the medical staff, who have this responsibility. When a doctor prescribes hospitalization, he refers the patient to a hospital and Blue Cross pays the bill. It does not question through lengthy questionnaires the recommendation of the physician. It thus places its very existence in the hands of the medical profession. In turn, it must depend upon doctors for protection against possible abuse. In contemplating the ordering of a laboratory procedure or an x-ray, either of which might have questionable value in assisting in the diagnosis of your patient's illness, keep in mind that it is not free, and let your decision be made accordingly. Similarly when considering the time of discharge, let your patient's condition be your sole guide. Avoid the practice of letting your patient stay an extra day because she is enjoying the rest and because it won't cost her anything. Keep in mind that these two examples are the basis of that which we call abuse. Neither of these services are free. Certainly they do not add to the cost of this period of hospitalization, but the total cost of your patient's hospital stay makes up a part of the over-all average cost which is used as the basis for next year's premiums.

Many people, some doctors included, are under the erroneous impression that health insurance actually lowers the cost of hospital care. It does not; it cannot lower it one penny. It serves merely to spread such cost. Therefore, the greater the cost that needs to be spread, whether this be due to abuse of the contract provisions or to some other factor, the higher the rates for such protection will climb, until finally it will be beyond the ability of all to carry heath insurance except the well-to-do; and this, as we all know, is becoming a smaller and smaller group.

While we defend the progress we have made in prepaid health protection plans, we must also be vigilant against subtle methods of attack. President Truman, by the creation of the commission on the health needs of the nation, has brought about a diversionary movement for the purpose of momentarily clouding the issue. It is interesting that he should create such a commission in an election year with a specific limitation in its action for one year—this, in spite of the monumental proportions of the outline of objectives. Such a survey could not possibly be accomplished with either accuracy or adequacy within less than three to five years. Dr. Gundersen of La Crosse, Wisconsin, in refusing to serve on the commission, states, "I believe I am correct in assuming that the commission is designed both in its majority membership and in its objective as an instrument of practical politics to relieve President Truman from an embarrassing position as an unsuccessful advocate of compulsory health insurance." Significantly, the year designated for the commission's study is the election year of 1952 when the President and Congressional candidates who have supported his socialized medicine proposals may find it politically expedient to avert a showdown before the people by stating that the whole subject is under study by a Presidential commission, and is therefore not an issue in the election. I can't say as I blame them for running and hiding on this issue but let us not be fooled by this device. Our enemy has chosen a strategic retreat at the moment; if given another opportunity in the future he will attack again.

Let there be no misunderstanding of the fact—the only reasons we criticize the President's commission are those that have been stated. The health needs of this country should be studied, and as a matter of fact they are. The Brookings Institution's two-year study of the availability of medical service in the United States, covering many of the subjects mentioned in the President's directive to the commission, will be completed this year. A new study on the financing of hospital care is being undertaken by the Commission on Financing of Hospital Care. This project is being underwritten by a group of five philanthropic foundations including the Kellogg Foundation and Rockefeller Foundation. Furthermore the studies of the Council on Industrial Health, Council on Medical Service, and the Committee on Federal Medical Service, all of the American Medical Association, continue. No one can say that our program is static, a status quo plan; nothing could be further from the truth. Let us be on guard, however, should it ever be thus described. The public is entitled to know the full truth, and I think they will get it. The public relations program of the American Medical Association is working hard to keep our citizens informed, but they cannot do the job alone. This is your fight and you can do much by keeping abreast of the activities of your Association, and participating actively in your country society. The "let George do it" era is gone. The success of the American Medical Association depends upon two things: the interest and vigor of its membership, and its leadership; and the first pretty well controls the second. It functions as a democracy and its life therefore is dependent upon its constituents. When you criticize the office on 535 North Dearborn Street, first ask yourself whether you in any way participated in their policies, either actively or passively. Have you done anything to help?

A few paragraphs back I stated that we were rapidly approaching the crest of the hill entitled "total voluntary health coverage." Well, there are a few dangerous curves ahead, but they are well posted. If we use the proper caution, as we keep our foot on the gas, we should easily reach our goal.

In rambling as I have from the direct subject of the hospital administrator, I hope I have not become so vague as to lead you to miss the point. It is this. That the hospital administrator of today is interested in more than just the running of his immediate hospital. He has to be. His total interest in the hospital field has led to better hospital service and to better hospital economics. Blue Cross is one of his inventions. The plan was conceived, organized and developed by the American Hospital Association, and the membership of this organization is made up of hospital administrators. Remember also that Blue Shield grew out of Blue Cross, and today the two serve as our weapons, as our spear and breast-plate in our conflict with inflation and its ravages to the economy of our civilization. Further, it is helping us to preserve and continue on a voluntary basis, free from governmental control, a system that is setting the standard for the world in hospital and medical care.

And now for a few words about the medical staff. What are your responsibilities on the team? The hospital owes much to all of you, but what about your obligations to the hospital? In searching for the answer to some of these questions, it might be well to review briefly some of the accomplishments in medicine in recent years.

Back in 1910 the death of fifty to sixty mothers was the price paid for every 10,000 babies born alive in Minnesota. By mid-1951 we were losing only four mothers for every 10,000 live births. Infant deaths have been greatly reduced. In 1910 approximately ninety-seven babies of every 1,000 born alive in Minnesota died before reaching their first birthday. During 1951 only twenty-four babies in 1,000 died in their first year.

As babies grow and become children, their parents no longer need fear the scourge of the deadly communicable diseases. Immunization, improved sanitation and better medical care are responsible for this change.

The sulfonamides, penicillin and the newer antibiotics, aureomycin, terramycin and chloromycetin, are such wonderful pharmaceutical tools that one really wonders how we were able to practice medicine at all without them ten years ago. Literally hosts of diseases for which we had no specific a few years ago now respond quickly to treatment. Advances in surgery have also been dramatic. Successful surgery is being performed on the gastrointestinal tract, the heart and lungs and the brain that was considered impossible ten years ago. The advances in the use of parenteral fluids including blood have been spectacular. Blood banks are an invention not alone of this age but of this decade! This fall at St. Barnabas Hospital one of our surgeons in the course of his research with parenteral feedings maintained a patient at a normal fluid balance and a constant weight for forty-three days on intravenous feeding alone. Every branch of medicine has had its advances and you have been responsible for them. The medical profession has much to be proud of. Its record is indeed a brilliant one. We are living in an age of medical miracles, and I for one am thrilled to have had the opportunity to have lived during it.

The hospital administrator and the physicians of the staff have been going forward together. Medical and hospital care has been constantly improved, and means have been found for the citizens of our communities to pay for it.

Let us return more specifically to the subject concerning the medical staff and its responsibilities to the hospital. Where and how do you, as individuals, fit into the picture I have painted? How do you stand in your own self-analysis as regards the quality of medical care you practice? How many surgeons here nodded their heads knowingly when they read Dr. Ravdin's lead article in the *Journal of the American Medical Association,* a few weeks ago, wherein he discussed the surgeon's responsibility to the community. It seems parts of our country are still somewhat plagued by the problem of splitting fees and the performance of "ghost surgery." How many hospital staffs in the country today are willing to submit to a regular professional audit of work performed? This has been the most successfully ignored recommendation of the American College of Surgeons in the past thirty years. Why? Why is it that so many doctors resist an audit of their professional activities? This question has bewildered many for many years. How many physicians who include obstetrics in their practice do so in a way that would make their medical school professors proud to have been their teachers? Are you patient, do you use caution in using analgesia; is induction used sparingly and only after the mother has been given a fair chance of going into and proceeding through labor normally; is cesarean section only performed when a clear-cut defendable indication presents itself; are mid and high forceps used without adequate knowledge of their dangers? A great challenge continues in obstetrics, for in spite of the tremendous reduction in infant and neonatal deaths in the past twenty-five years, considerable improvement is still thought possible. Immaturity, the leading cause of infant deaths, ranks as eighth in the list of the ten leading causes of *all* deaths. In 1950 in Minnesota, 520 infants died from immaturity; 252 infants died in 1950 from birth injuries. Almost as many deaths occur in infancy as there are in all of the next thirty-nine years of life. Maternal mortality in Minnesota was reduced to .58 per 1,000 live births in 1950 and still lower to .4 per 1,000 live births for the first half of 1951. Minnesota can well be proud of this record. Yet of the forty-four deaths that occurred in 1950, the maternal welfare committee judged that thirty-three were preventable.

To what extent do you assist and participate in the intern-resident training program in the hospital? Does your house staff say that your training program is giving them everything they had hoped it would. Do you teach in return for your interns' services to your patients? Do you support the academic program of your hospital by regularly attending the clinical-pathological conferences, section meetings and general staff conferences.

The hospital administrator is interested in all that you do, for what you do pretty well determines the reputation of your hospital in the community. The hospital administrator, you see, has responsibilities beyond those of just running a good hotel. It is his job to work with those on the staff who will co-operate with him in maintaining a quality of care in the hospital. As I have tried to point out, quality is your business and something every physician has or should have the ability to give. In the hospital where the staff renders the highest quality of medical care and the administrator keeps things humming efficiently with warmth and understanding, we truly have the millenium.

As you know our parent organizations, The American Medical Association and the American Hospital Association, have not been on the best of terms in all matters in recent years. As 1951 progressed, however, the air cleared considerably, and a definite change in relations became apparent.

The attitude expressed at the convention in Los Angeles that "there can be no exploitation of the doctor or of the hospital if everyone concerned will work together to supply the greatest possible good quality medical and hospital services to the public" indicates a new appraisal of hospital-physician relationships. Three major policies were modified.

1. The threat to drop offending hospitals from the AMA approved list, where or when a physician providing a professional service has been found to be unethical, has been lifted.
2. The ethical dilemma of many salaried physicians has been eased to some extent. Although still warned against working for hospitals, medical schools, and the like, under conditions which permit the sale of their services by their employer for a fee, the real ethical test, it now appears clear, is whether any "exploitation" exists.
3. The matter of submitting doctor's bills as separate from hospital bills has been clarified so that the recommendation now reads "the cost of medical service rendered in hospitals should be separated from non-medical costs, as can be done by existing and accepted methods of cost accounting, and should appear thus separated on the statement submitted to the patient." In other words, joint bills rather than separate bills have AMA approval.

Like the story of the man who called his doctor and said, "Please come over quickly. My wife is very ill. I'm sure she has appendicitis and needs an operation." The doctor said, "Why, I took her appendix out three years ago. Who ever heard of a second appendix?" The fellow said, "That's right, doc; but did you ever hear of a second wife?"

Things are changing with us also. A realization that we need each other, and that this is no time to have differences, is rapidly spreading among administrators and physicians alike. Hospitals are your workshops; they are mere shells without you. A hospital without physicians is like a school without a faculty. You, in turn, are like professors without colleges, without them. We are completely dependent upon each other, and it seems in most instances, pleasantly so, as a wife is to a husband. It is a happy marriage. It is a union we should nurture and enjoy. We have similar problems and purposes. We both exist to care for the sick. We have become so close in our relationship that anything that affects one quickly affects the other. Should government gain control over hospitals you would not long continue as completely private practitioners. If the reverse should occur, the change would take place even more quickly. Socialized medicine today would mean socialization of the voluntary hospital system tomorrow.

In closing, let me again repeat the word team, and remind you that if we are going to win the game of health we are playing, we had best get our signals straight and play as though we attended practice regularly. Our opponents are sharp, well disciplined and powerful. We, however, have the spiritual advantage. We also know that in spite of errors and hesitancy along the way we have done a pretty good job. Teammates keep up each other's fight by example, encouragement and constructive criticism, not by back-biting. This is our cue. If we are going to win the fight to continue our voluntary system of hospital and medical care, we must pull together. Let's take this next kickoff and really carry the ball.

Every general hospital can speed the ultimate eradication of tuberculosis in this country by adopting its own tuberculosis control program. This program should emphasize at least three features: routine admission chest x-ray films for all patients and periodic chest x-ray films for personnel; isolation precautions for patients with sputum containing acid-fast bacilli; and provisions for prompt therapy of all patients found to have active pulmonary tuberculosis. No matter how large or how small the general hospital, it can find a form of routine x-ray examination best suited to it. Indeed, if a general hospital is to provide adequate medical and surgical service to its patients, it must have some type of admission chest x-ray inspection.—Sydney Jacobs, M.D., *Diseases of the Chest,* November, 1951.

MEDICAL TECHNOLOGY

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PRIOR to the time of Osler's publication in 1892 of *"Principles and Practices of Medicine,"* the average physician was expected to perform practically all of the prevailing laboratory procedures: urinalysis, few simple blood counts, gastric analysis, sputum examinations and some simple bacteriology. About this time the interns appeared on the scene and in the larger hospitals they were responsible for the laboratory tests. Prior to World War I "trained workers" were available to a limited extent. At the close of World War I, the pathologist, becoming established, often did the laboratory work: routine blood counting and urinalysis, sectioning surgical specimens and staining them, not to speak of washing and cleaning his own glassware. By this time, society was accustomed to seeing high school girls—some graduates and some not—working with doctors in their offices and in clinical laboratories under medical supervision learning medical technology by preceptorship generally.

According to Virchow, the seventeenth century was the century of the anatomical laboratory, the eighteenth the clinic, the first half of the nineteenth the physiologic institute (first seen in Breslau in 1825), and the second half the pathologic institute (the first being that of Virchow's in Berlin 1856).

About the beginning of the twentieth century, medicine had developed to the point where a new type of laboratory was indicated—the clinical pathological laboratory. In America it was accepted as an entity and defined in 1924 by a joint committee of chemists, bacteriologists, pathologists, and physicians thus: "A clinical (pathological) laboratory is an institution organized for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods for the purpose of ascertaining the presence, progress and source of disease." Its prototype first appeared on the continent in Leipsic in 1892, in Munich in 1894, and in America at the University of Pennsylvania in 1895.

The beginning in America of the clinical pathological laboratory was a humble one. To illustrate: In 1896 Johns Hopkins set aside a 12 x 12 foot room for "extensive tests." Its equipment consisted of a chair, a modest stool, some simple tables, wall shelves, two monocular microscopes, some test tubes and racks, and bottles. The doctor-director thought: "While running water and gas are helpful adjuncts, the ordinary water-bottle and spirit-lamp are all that is necessary." There were major and minor objections against constructing clinical laboratories in hospitals—laboratories such as are now seen not only in hospitals but in every clinic and to some extent in progressive practitioners' offices. In 1901, these were the major objections reported: they were a scientific luxury, space-consuming, expensive, and an imposition on an already busy hospital intern; the minor: the fear that patients might drink some of the poisonous laboratory reagents, and some of the staff members might appropriate laboratory equipment.

Relative to costs, again taking Johns Hopkins as typical, the director said at the time of the erection of the 12 x 12 foot room: "I have carefully gone over the bills connected with the establishment of the laboratories . . . and find that $300.00 will fully equip such a laboratory." And then, with respect to maintenance: "Maintenance of a laboratory can well be accomplished on $50 a year."

In the past half century, every feature of the clinical pathological laboratory has changed to take on new proportions. Modern laboratory equipment is expensive and so is the maintenance of a laboratory. Particularly is the personnel a changed picture. In the American College of Surgeons' move to standardize hospitals, MacEachern indicated in 1925 that the hospital's efficiency depended on the role of the pathologist and hence on the clinical pathological laboratory. Medical practice has confirmed MacEachern's statement. The twenty-five years that have passed since this commitment have given proof that any doctor's efficiency is dependent on the availability of a reliable laboratory. During the first quarter

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of this century, while the tests were relatively simple and few, the physician could manage not only to get them done but even to interpret them. During the past twenty-five years, however, the field of the clinical laboratory has greatly broadened, and there has evolved the clinical pathologist. As pointed out in 1925 by John Kolmer, M.D., making the routine tests was not elevating clinical pathology to a specialty, any more than doing the work of a well-trained nurse was practicing medicine. So further evolution brought into being, as an auxiliary to pathology, the profession of medical technology and the medical technologist.

In the light of present-day understanding, what is medical technology? The poorly informed think it merely a transition from high school to being a helper in a doctor's office; others regard it as a transition from high school to being a nurse. It is neither. Medical technology is a profession in which the members learn and utilize the scientific principles that stem from the fields of chemistry, mathematics, physics and the biological sciences, principal of which are zoology, parasitology, bacteriology, anatomy, physiology, histology, hematology and immunology, to recognize facts helpful to the doctor in making a diagnosis.

Webster defines "profession" as an "open declaration," a "calling" or "vocation *especially not mechanical.*" Thus, medical technology is a calling—a natural desire to follow a walk of life that is scientific, more or less routine, demanding skill especially of the hands, an abundance of perseverance, and, as in fields of exertion, reasonably good physical health and mental and emotional soundness. A "technician" is often confused with a "technologist." A "technician" can be defined as "an operator of machines." A technologist has the "logus" as well as the ability to operate machines. More often than not a medical technologist still has to answer to "technician," "laboratory worker," "laboratory technician," "medical technician," all of which the properly trained medical technologist is not. Someone has said: "They call anybody from a psychiatric social worker to a medical stenographer a medical technologist." It is unfortunate, but this is true. Who is the medical technologist? She (he is the exception) is an individual, well versed in the scientific principles mentioned already, so that she can apply them to various technical procedures and uncover basic facts that aid the doctor directly or indirectly in the practice of medicine and medical research. The medical technologist is one who makes it possible to give the necessary services in chemistry, bacteriology, and the several other fields from which medicine draws without employing an identical number of specialties to handle adequately the respective sciences. In other words, it is she who creates somewhat of a paradox in science: more specializing with less specialists. This is the mid-century concept of the term medical technologist. Physicians now admit that their high esteem for the profession of medical technology comes from the reliance they can place on the help of the properly qualified medical technologist. They assume that the acquired data is carefully obtained, the realization of which the medical technologist is aware. It makes the medical technologist and physician co-partners in sharing the moral responsibility of the patient. Should a pathologist play a part in the service, then the medical technologist completes a trio, and her dignity lies in being entrusted with the professional responsibilities of both. This brings us to the current problem in medical technology, the second crisis in its history.

The first crisis in medical technology came immediately after the close of World War I, when in the rush to become standardized, hospitals, spurred on by the American College of Surgeons, set up clinical pathological laboratories in their institutions. A shortage of pathologists to direct them became apparent, but a greater shortage of laboratory assistants was still more apparent. Organization was established among the pathologists and about 1921, the American Society of Clinical Pathologists was created to be climaxed by the establishment of the Board of Pathology in 1935. Once the clinical pathologists were organized, they began to organize their assistants, then variously labelled but generally identified as laboratory technicians. This era with its scarcity of laboratory technicians was marked by chaos and confusion among them.

The second crisis in medical technology is the one we are experiencing now as the aftermath of World War II. It, too, is earmarked by a scarcity of medical technologists, and by confusion. This time, however, the confusion is not limited to the laboratory workers; it includes the public as well. The scarcity of medical technologists stems from the greater use of the clinical laboratory because of the effectiveness and accuracy of the laboratory in establishing diagnosis as demonstrated already in World War I but greatly emphasized in World War II. And the second of the principal reasons is that this is the generation of medical men trained to practice in terms of laboratory findings. In the first crisis, "schools" mushroomed into existence and, among others, substandard laboratory technicians appeared. The Registry of Medical Technologists of the American Society of Clinical Pathologists, to be described later, came to the rescue. It aimed to curb the training of laboratory technicians pretty much as the American Medical Association aimed to curb the "diploma mills" that turned out incompetent doctors, pharmacists, and the like.

Its story is this: In October, 1922, the first public pronouncement regarding the desirability of proper training and classification of medical technologists was made by a member of the Minnesota State Medical Association at the annual meeting of that Association. Six years later, while the American Society of Clinical Pathologists was nationally convened in Minneapolis, that earlier proposed plan of a "central control body" for medical technologists crystallized into what is now known as the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists; in brief, the Registry (ASCP).

The Registry (ASCP) is a standardizing board in medical technology, being originally composed of six pathologists but since 1950 of nine members, the three additional being medical technologists certified originally by the Registry. After nearly a quarter century of operation the Board carries on practically the same now as when originally designed. Its purpose is to screen the unfit from attempting training for medical technology, and to closely watch the training of the accepted student as to school, curriculum, and quality of performance. Epitomizing the purpose of its existence, it is to ensure competent, ethically-trained and ethically-minded personnel for medical technology and to safeguard that profession. The quarter century of its existence has proven that it has fulfilled its purposes without political influence, or personal ambitions on the part of its personnel. It has operated purely on a voluntary basis. Those submitting to its jurisdiction have done so on their own volition. The plan of operation of the Registry has been so successful that it now enjoys the endorsement of the American Medical Association, the American College of Surgeons, the American Hospital Association, the Catholic Hospital Association, and leading educational institutions associated with medical schools and colleges, besides the American Society of Clinical Pathologists.

According to Registry standards, to hold a certificate from that agency the candidate must have met the minimum pre-technical and technical training requirements. The minimum pre-technical requirement consists of two years of college work following a prescribed curriculum, and the technical, twelve calendar months in an "approved school" of Medical Technology which now means a clinical laboratory endorsed for training medical technologists by the Council on Medical Education and Hospitals of the American Medical Association. However, most of the "approved schools" —and there are about 450—have minimum college requirements of their own consisting of at least three years of college work preceding the year's technical training, and all leading to a college degree. The final hurdle is the successful writing by the candidate of a nationally conducted examination, prepared or edited by a member of the Registry, administered by authorized proctors throughout the United States and machine scored by a salaried expert. This examination paper, together with the college transcript, the application blank properly endorsed, and other credentials remain filed in the Registrar's office of the Registry. The endorsement of the application blank bears subscription to a Code of Ethics promising among other things not to operate an independent clinical pathological laboratory nor otherwise commercialize his practice of medical technology. Certification is given the successful candidate in the form of a written document signed by the Registry officials and with the right to affix to his name the insignia M.T. (ASCP)—M.T. only before 1941.

The first insignia issued by the Registry was L.T., meaning laboratory technician, while a choice few were given M.T., but in 1936 a ruling went into effect that M.T. would be the only insignia. By 1941, it became necessary to differentiate medical technologists certified by the Registry (ASCP) and others. The following Registry notice of 1941 explains the issue:

Notice to Registered Medical Technologists Holding Certificates from the Registry . . . In order to differentiate the original M.T.s who hold a certificate from the Registry of Medical Technologists of the American Society of Clinical Pathologists from those who affix the same letters to their names and are thus trying to confuse the public, it is proposed that all those medical technologists who are identified with the Registry be urged to write after their M.T., ASCP in parenthesis, thus M.T. (ASCP) which clearly indicates that they are recognized by the American Society of Clinical Pathologists.

Registered medical technologists (ASCP) are entitled to protection from unwarranted intrusion of a group of technicians whom we think are not ethically entitled to the designation (M.T.) which by common usage and consent has been the property of the American Society of Clinical Pathologists for more than ten years.

When the Registry first proposed certification of medical technologists, 350 laboratory technicians applied for certification The number certified was small but with time increased rapidly so that in 1936 there were at least 3,500; by 1941, nearly 10,000, by 1945 nearly 12,000 and by 1951 nearly 20,000. For the 20,000 that are on the roster of the Registry it is safe to assume another 20,000 are not on that Registry roster. Some have never been enlightened about the Registry although qualified to register; others have been misinformed, and a third group of nonregistrants (ASCP) have objectives that are questionable. But with respect to all those outside of the Registry and the professional organization for its registrants it has been said: "At the expense of those who are registered (ASCP), those who are qualified and have not registered are no doubt reaping where they have not sowed."

The professional organization for medical technologists came into being June 13, 1933, at Chicago with a roster of some twenty members. It is known as the American Society of Medical Technologists, abbreviated, ASMT. It soon became a corporate body according to the statutes of the State of Michigan. In 1947, it was reorganized under a system similar to that of the American Medical Association and the American Nurses Association, in that constituent societies exist according to states, and district societies of medical technologists within the states. Under the new plan, it grew rapidly and is now approaching a membership of 10,000. The first editions of its official bimonthly organ known as *The Journal of Medical Technology,* appeared in early 1935. It is now in its seventeenth volume.

Through the concerted efforts of the professional organizations of the registered (ASCP) medical technologists, commissions have been obtained for qualified medical technologists in the United States army and air forces; civil service ratings have been adjusted in their favor and are spiralling toward a point equitable with their training; politics have been kept out of medical technology, licensure has been controlled, and medical technologists are gaining voice in the determination of their own policies.

The confusion characterizing in part this second crisis in medical technology has resulted from initial opposition to the Registry (ASCP) and its activities by groups which have since merged their interests and have grown into formidable organizations. In 1935 their representatives said of the Registry:

> The promised boycott in a few years of all technicians who fail to register in the Registry of Technicians and subscribe to its requirements in order to work in a hospital approved by the AMA is a threat. This is a minority move to coerce the technician and blind him so that he will not seek true standards.
>
> And recently they referred to what appears to be Registry policies as a "system of controlled dictatorship among hospitals and schools."

The first organization to make its appearance was the counterpart of the Registry known as the American Medical Technologists, the AMT. Then followed an organization to become the counterpart of the American Society of Medical Technologists, the ASMT. This second organization called itself the American College of Medical Technologists, the ACMT. For "approved schools," the counterpart became "accredited schools," and now the expressions: registration, registered medical technologist, examination, journal, code of ethics, and other parlance are used as glibly by those outside the recognized institutions as by those with whom such expressions originated. No attempt to protect themselves by law has been made by the Registry, or the ASMT save to become corporate bodies. No recourse has been had to legislation to protect objectives and terminology. Thus in 1940 the Journal of the American Medical Association review the activities up to that time:

> . . . Within the past six months one C. A. Bartholomew of Red Bank, N. J., who has never himself been registered, began to circularize the medical laboratory technicians of New England asking them for a fee of $5 to join the "American Medical Technologists" and offering to bestow the title M.T. by virtue of a charter from the state of New Jersey. As far as we know, this movement is not supported or authorized by any scientific body. The promoters seem, moreover, to have undertaken the task of passing on the competence of training schools for medical technologists. In this

they seem to be abetted by the proprietors of some commercial schools which have not themselves been approved by the Council on Medical Education and Hospitals and the Registry. This would seem to be the old technic of having one soiled hand wash the other. Graduates from these unapproved schools who are ineligible for the Registry's examination seem to be welcomed into the "American Medical Technologists." Indeed, a teacher of one of these schools has, it is reported, solicited its graduates to join this organization at reduced rates. Complaints have come to both the Council and the Registry against the efforts of this unauthorized and irresponsible body to undermine the scientific and ethical standards that have been set up for the practice of this important vocation by the American Medical Association and the American Society of Clinical Pathologists. Certainly physicians everywhere will do their utmost to inform young men and women who contemplate a career in medical technology of the hazard that lies in participation in such courses or organizations.—J.A.M.A., 114:1269-1270 (Mar.) 1940.

Recapitulation

The Recognized Institution	*Its Counterpart*
The registry (ASCP). Established and incorporated in Colorado in 1928. Operating out of Muncie, Indiana, under the chairmanship of Dr. Lall G. Montgomery.	The American Medical Technologists, AMT. Established in New Jersey about 1940. Operates out of Easthampton, Massachusetts, under the secretaryship of Mr. C. A. Bartholomew.
The American Society of Medical Technologists, ASMT, incorporated in Michigan and functioning since 1933.	The American College of Medical Technologists, the ACMT, established and incorporated in New Jersey in 1942.
"Approved Schools"—approved by the Council on Medical Education and Hospitals of the AMA.	"Accredited schools"—accredited by the Council on Education, Qualifications, and Standards of the American College of Medical Technologists.
Registration examinations prepared and/or edited by members of the Board of Registry (ASCP).	Registry examinations prepared by an "impartial board of qualified examiners."
Registration insignia for successful candidate: "M.T. (ASCP)."	Registration insignia: "M.T."
Official organ: *The American Journal of Medical Technology.*	Official organ: *Journal of American Medical Technologists.*

The American Medical Technologists, created a decade after authorized organizations became accepted entities, and the American College of Medical Technologists, also a decade too late to be the authorized one, are interrelated and interdependent organizations. The members of both call themselves registered medical technologists but the whole regimen is autonomous—these "registered medical technologists" set their own standards, give their own examination, issue their own certification, work under a Code of Ethics which permits them to operate independent laboratories, without the direct supervision of a doctor of medicine. Contrast this with the manner in which medical technologists (ASCP) conduct themselves. They have worked with considerable dependence on the medical doctors but are gaining their autonomy in proportion to the merits they manifest. They are conscious of the need of the protection of the medical profession—they are the personnel that have come into the sheepfold by the right path. They hope only to serve medicine ethically. They have their rights and privileges but they also assume their responsibilities. Now their rights and privileges are to have the sanction of the medical profession in gaining recruits, in establishing a gradation of preparation, in establishing institutions for training at various levels in the profession, and in soliciting the discriminating eye of the medical man in employment. It is no longer enough to ask: Are you registered? but, Are you registered ASCP? There is a difference.

Minnesota was the first state in the union to inaugurate a collegiate course in medical technology. This course was instituted at the University of Minnesota in 1923. Minnesota is the only state in the world that has all its approved schools on the collegiate basis leading to a bachelor's degree with a major in medical technology, or the degree wholly in medical technology. These schools are the University of Minnesota; Minneapolis General and Ancker Hospitals affiliated with the University of Minnesota; the Chas. T. Miller Hospital affiliated with Macalester College, Saint Paul; the Swedish Hospital, Minneapolis, with Gustavus Adolphus College, St. Peter; St. Luke's Hospital, Duluth, with Hamline University (originally, but admits students from other institutions of higher learning); St. Mary's Hospital, Duluth, with the College of St. Scholastica; and St. Cloud Hospital, St. Cloud, with St. Benedict's College. Minnesota stands first in having the school with the largest enrollment in medical technology in the world. This is the University of Minnesota which annually averages some fifty graduates. Lastly, Minnesota is the leading state in the nation for organization and activity among its medical technologists of which there are about 240 M.T.s (ASCP)

The state organization of medical technologists

(Continued on Page 362)

ACUTE LARYNGOTRACHEOBRONCHITIS

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ACUTE laryngotracheobronchitis is a clinical entity occurring in infants and young children but which has only been recognized as such during the past decade or so. It may occur epidemically.[14] The disease is rarely seen in adults, the almost universal incidence in children being explained by the fact that the infantile larynx is especially susceptible to reflex spasm, is much less rigid and more easily collapsible than in adults, and there is much more inflammatory edema in proportion to the diameter of the lumen, the airway being diminished considerably more than in adults. Children also have a lower immunity to respiratory diseases.[13] The condition is frequently unrecognized or inadequately treated as a laryngitis, tracheitis, bronchitis, or common cold but is actually a serious, prostrating and sometimes fatal disease.

The etiology is unknown but there is usually a mixed infection, two or more types of bacilli commonly being involved and accounting for the frequently overwhelming infection and toxemia. Hemolytic streptococci, streptococci viridans, staphylococci, pneumococci, influenzal bacilli, or Friedlander's bacilli may be present. Some cases appear of viral origin.[13] Some believe that a preliminary virus infection paves the way for a pyogenic invasion.[2] An ulcerative tracheobronchitis may complicate a typical pneumonia.[7] Emery[4] reports that, in a series of 332 cases, many of the children were what the layman usually considers a healthy child—overfed, overweight, with red cheeks and fat thick limbs. These babies were so often admitted to the hospital the following winter with croup that this condition was often called the "croup physique." His observation indicated that laryngotracheobronchitis occurs more frequently and with greater severity in overweight children. The condition is a cold weather disease, the incidence being much greater with sudden weather changes than with continued cold. This is believed to be partly a result of the suddenly increased heat and lowered humidity in houses. Nasal catarrh develops; and the consequent mouth breathing, by permitting the dry air to impinge directly upon the larynx without being previously moistened in the nasal passage, produces a dry, scratchy throat especially susceptible to bacterial invasion.

Pathologically, the disease is an acute infection of the larynx, trachea and entire bronchial tree. The pharynx may also be involved in severe cases. The mucosa and wall of the larynx, trachea, bronchi and bronchioles are acutely inflamed, swollen and edematous. The vocal cords are red and edematous. Thick, viscid pus may be seen oozing out between them. A purulent, sticky, gummy secretion forms and may fill the entire lumen of the trachea and bronchi down to the finer ramifications. Scattered patches of atelectasis, congestion and consolidation may be found in the lungs at autopsy and a purulent exudate squeezed from their cut surfaces.

The onset of the disease is usually abrupt in an infant who has been in contact with another child or an adult having an upper respiratory infection. An afebrile acute rhinitis and pharyngitis develops and is accompanied by a dry, croupy cough. After a few hours or days, the temperature suddenly rises and severe respiratory symptoms develop. The child becomes hoarse, develops an inspiratory crow, and expiratory wheeze and may become seriously dyspneic. There may be extreme toxemia and prostration. There is a characteristic inspiratory retraction of the suprasternal and infrasternal notches, the intercostal spaces and the epigastrium. Progressive restlessness and cyanosis develop as a result of the anoxemia. Cough is constant but usually unproductive even in older children because of the thick secretion. Dehydration, prostration and finally complete and usually fatal collapse develop, the child being in an anoxic coma with its entire energy spent in breathing.

Physical signs are not diagnostic except for the inspiratory crow. Physical examinations show the conditions just described and should be minimized. Moist râles are common. Fine, sticky râles indicate alveolar involvement but the inspiratory stridor often obscures breath sounds.

Read before the Minnesota Academy of Ophthalmology and Otolaryngology, March 25, 1952.

Absent breath sounds and impaired percussion resonance indicate areas of atelectasis. Laboratory findings are not helpful diagnostically, and pulmonary roentgenograms only show the presence of some pulmonary complication. Bronchoscopic examination shows an inflamed and edematous larynx with only a small posterior opening between the cords. The trachea is found to be inflamed, edematous and filled with a thick, gummy mucus which may rapidly dry into crusts obstructing the trachea or main bronchi.

Laryngeal diphtheria is the only condition closely resembling acute laryngotracheobronchitis and can usually be eliminated by throat smears, cultures and laryngoscopic examination. Laryngotracheobronchitis is differentiated from simple spasmodic croup by the persistence of symptoms after the usual palliative treatment. Location of the obstruction is indicated by the degree of recession of the soft parts; the greater the retraction, the higher the obstruction. Inhalation of a foreign body is differentiated by the history, auscultation and chest fluoroscopic examination or roentgenograms. The diagnosis is based upon recognition of the presence of obstructive dyspnea and a serious emergency. It should be obvious with the advent of increasing dyspnea, restlessness, fever and cyanosis. The prognosis is always serious, there being almost 100 per cent mortality in untreated cases, 70 per cent in those partially treated, and 9.2 per cent at best.[4,8,13] The age group has been found important prognostically, the highest incidence of the disease being in children about two years old and 87 per cent of all deaths in those under four years of age. About 65 per cent of patients are males.[15]

It may be difficult to decide whether the child should be treated at home or hospitalized. The latter is best, as proper treatment can only be provided in a well-equipped hospital. If home treatment is attempted, the patient should be promptly hospitalized if the condition does not improve in a few hours, if the cry is hoarse or husky, or if there is evident retraction about the chest. Apparent relief after vomiting is often only temporary, the child soon becoming worse.

Treatment is based upon the etiology and pathology of the disease. Infection must be combated, secretions loosened and removed, and supportive measures provided. A humid atmosphere of steam is essential to thin the thick secretions, the room temperature being kept as near normal as possible. A steam tent or room is usually best, two or three steam kettles generally being necessary. Mechanical humidifiers in an ordinary room are preferable if available, as they provide moisture without making the room uncomfortably hot. The appearance of cyanosis indicates a need for oxygen. This should be well moistened when used as it otherwise causes the respiratory secretions to become undesirably dry. It is best given in an open top tent. Weinstein[15] recommends the use of humidified cool oxygen in place of the steam croup tent, and a helium-oxygen mixture instead of straight oxygen. Many strongly feel that sedation should not be used,[10] but it may be necessary for children who are easily frightened. It must be carefully administered because of the danger of unduly suppressing the cough reflex and respiratory rate. Small doses of phenobarbital are preferred if sedation is necessary.[4] Codeine sulphate should not be used as it increases the viscosity of the sputum. Antihistaminic drugs are contraindicated.

Secretions may be liquefied by the use of calcidine gr. ii or five drops of a saturated solution of sodium iodide three times a day to a two-year-old child and three drops to a patient one year old. Because of the efficacy of carbon dioxide in liquefying bronchial secretions, the use of a 2.5 to 4 per cent mixture of this gas with 20 per cent oxygen in a tent has been suggested.[10] Expectorants are not recommended for general use though ipecac in emetic doses may sometimes be helpful.[4] Frothy or mucoid secretions in the nasopharynx or throat should be gently suctioned out. James[6] reported dramatic results from the use of atropine sulphate gr. 1/400 subcutaneously every three hours in four infants extremely ill with acute tracheobronchitis and who had not responded to treatment with penicillin or sulfadiazine. Improvement was immediate, sputum diminishing, breathing becoming easier and the cyanosis disappearing. One less seriously ill child responded similarly to Tr. belladonna by mouth. The atropine injections were continued until all crepitations had disappeared from the chest. Lamont[8] and Logan advise against the use of atropine sulphate in these cases, however, as it increases the viscosity of the sputum.

Hydration is most important. Fluid should be given subcutaneously or intravenously if it cannot be taken by mouth, at least 60 cc. per pound of body weight being given infants every twenty-four hours. Older children require about 30 cc. per pound. One or more blood transfusions of 100 to 150 cc. each may be necessary to combat infection and support the patient. Logan[10] states that the use of concentrated blood plasma or blood serum for its dehydrating effect upon laryngeal edema has not been effective. Nutrition should be maintained, food being given as desired and usually in liquid form. Throat cultures are important, material being obtained by a suction apparatus.

Vigorous chemotherapy or antibiotic treatment is most important but varies with the case, depending upon the etiologic bacterial organism. Time cannot be taken to isolate it however. Immediate combined treatment with penicillin, streptomycin and aureomycin or chloromycetin should therefore be started.[4] Sulfonamide drugs are still valuable treatment aids, sulfadiazine being preferable, but the three mentioned antibiotics will control practically all bacteria which may be present without causing possible urinary complications. Penicillin should be given intramuscularly every two or three hours or continuously in a vein. Recommended dosage for a two-year-old child is 200,000 units divided into eight doses daily. Penicillin may also be given in large doses orally. Streptomycin in doses of 0.8 to 1.0 gm. daily, divided into four to eight doses, has been quite effective against the Hemophilus influenzae. A daily dose of 0.5 gm. is sufficient for a one-year-old infant. Moncrieff and Weller[12] report excellent results following the administration of chloromycetin 0.25 gm. three times a day for four days, starting a few hours after tracheotomy. About eight hours is usually required to obtain adequate blood levels from antibiotics to produce improvement. Cortisone 60 to 80 mg. intramuscularly q 8 hrs. has been used on recent cases and undoubtedly shortens the period of recovery.

Tracheotomy is indicated if the child has not improved one hour after admission to hospital,[13] or if the dyspnea increases and laryngeal obstruction becomes more marked in spite of treatment. It should preferably be done by trained operators. Some patients are so seriously ill upon admission that immediate tracheotomy is indicated. Extreme restlessness, cyanosis and fatigue also indicate tracheotomy. This operation is preferred to intubation and is best done after a preliminary bronchoscopic examination and sucking out crusts and secretions. Intubation and laryngeal suction only relieve upper obstruction and do not affect the inflammatory swelling or secretion in the trachea or bronchi. Aspiration can only be done intermittently by bronchoscope. Care must be exercised to so place the incision that the tracheotomy will not irritate the subglottal region.[10] Delayed tracheotomy increases the likelihood of pneumonia. Special day and night nurses are advisable before tracheotomy and imperative afterwards. The high reported mortality after tracheotomy in these cases can be avoided by careful postoperative treatment. It is generally agreed that the operation should be done over a bronchoscope or other laryngeal airway. The air entering the tracheotomy tube after operation must be kept moist to help prevent the formation of crusts in the trachea, the same methods being used after operation as before. Albers[1] reports most satisfactory results from the use of a nebulizer attached to a rubber tube carrying oxygen, the lower end being applied to the tracheotomy opening by a flexible rubber hose. A small rubber nipple with the teat cut off has also been satisfactory for this puropse and even life saving.[10] The bronchoscope should not be inserted more than 2.5 cm. beyond the cords. The suction catheter should be used frequently and freely. This is contrary to most authorities. Their advice is not to insert the catheter beyond the end of the tracheotomy tube. Moist saline compresses over the tracheotomy tube, injection of steam into the oxygen tent, or the periodic instillation of a few drops of saline or warm mineral oil into the tube may all be tried.

The early recognition of acute laryngotracheobronchitis and elective treatment rather than emergency efforts to relieve terminal asphyxia greatly increase the probability of obtaining satisfactory results from treatment.

Case Report

G. K., aged three, was hospitalized on January 11, 1948, because of labored breathing with intermittent cyanosis, hoarseness, elevated temperature, and a general toxic appearance. Five days prior to entering the hospital the child developed nausea and vomiting and a low grade fever. The following day he had a moderate diarrhea. Examination in the office by the family physician revealed slight injection of the pharynx; there was a slight cough, the abdomen was slightly tender, temperature was 99.4°, pulse 100, respirations 22, and no pulmonary involvement existed.

In the following thirty-six hours he seemed to be normal except for a slight cough. That evening he developed a hoarseness, and the temperature was 101°. Steam inhalation and a cough medicine (cheracol) seemed to give relief until 2:00 a.m., when he developed a persistent dry hoarse cough; the temperature was 102.4° and the breathing was more rapid and heavy. He was again seen by his physician at 11:00 a.m. At this time the child was listless and appeared toxic. His temperature was 102.4°, pulse 100, respirations 28; his voice was husky, the pharyngeal mucosa was injected with some mucoid exudate on the posterior wall, and a definite stridor existed over the laryngeal tracheal area which obscured other chest sounds. Penicillin 300,000 units was given intramuscularly. At 1:45 p.m. the mother reported that the child had grown worse and at times was gasping for breath. Immediate hospitalization was advised and carried out.

At the time of entry the child had a temperature of 102°, pulse 140 and respirations 38. He was well nourished but had a definite toxic and fatigued appearance, laboring desperately to obtain air.

Diagnosis: Acute laryngeal tracheal bronchitis.

Tracheotomy was immediately performed but under difficulty. The trachea had collapsed due to cessation of breathing. Aspiration via the tracheal opening expressed a large amount of heavy purulent mucus and breathing was restored by artificial respiration and the use of oxygen.

Postoperative treatment consisted of penicillin, streptomycin and calcidine therapy, room humidifiers, frequent cleansing of the inner tracheotomy tube, repeated suction via rubber catheter inserted through the outer tracheotomy tube and the constant attention of trained nurses.

Recovery was at times rather stormy but rapid and complete. The tracheotomy tube was removed on the fifth postoperative day and the patient was dismissed from the hospital on the eighth day. The tracheal wound had closed with the exception of the overlying skin. Breathing was free and normal, and the voice was clear and distinct.

Comment

This case was chosen as the most typical one of twenty-eight patients seen by me during the past four years, all requiring tracheotomy except six. There were three deaths. Two occurred postoperatively, and one in a patient in whom tracheotomy had been performed after breathing had stopped while on the way to the operating room. The child could not be revived by artificial respiration, the use of stimulants or oxygen.

Each case is a distinct problem in itself. Some patients take on a rather uneventful course and require only a moderate amount of attention. This is usually true in patients who have not reached the desperate stage prior to operation. Others present little time for operative procedure because of their critical condition and therefore not only make the operation more difficult but also have a more stormy convalescence, requiring more intensive nursing care and intravenous and subcutaneous treatment to combat the infection and dehydration.

References

1. Albers, G. D.: Use of a nebulizer to produce oxygenated vapor; report of a case of acute laryngotracheobronchitis. Proc. Staff Meet., Mayo Clin., 18:511, 1943.
2. Cyclopedia of Medicine, Surgery and Specialties, 3:439-41, 1948.
3. Davison, F. W.: Acute laryngotracheobronchitis; further studies on treatment. Arch. Otolaryngol., 47:455-65, 1948.
4. Emery, F. C.: Acute laryngotracheobronchitis. Arch. Pediat., 67:116-23, 1950.
5. Everhart, M. W.: Acute laryngotracheobronchitis. Texas State J. Med., 43:776, 1948.
6. James, C. S.: The dramatic effect of atropine in acute tracheo-bronchitis in children. N. Zealand M. J., 48:74, 1949.
7. Kay, E. B.: Ulcerative tracheobronchitis following a typical pneumonia; report of cases. Arch. Int. Med., 76:93-101, 1945.
8. Lamont, G.: Acute laryngotracheobronchitis. Bull. Vancouver M. A., 25:263, 1949.
9. Levitsky: Laryngotracheobronchitis. Arch. Pediat., 65:449-54, 1948.
10. Logan, G. B.: The diagnosis and treatment of acute laryngotracheobronchitis. Dis. Chest., 15:85-91, 1949.
11. McNeill, N.: Acute laryngo-tracheo-bronchitis. M. J. Australia, 2:558-60, 1948.
12. Moncrieff, A., and Weller, S. V. D.: Acute laryngotracheobronchitis treated with chloromycetin. Lancet, 2:748, 1949.
13. Morgan, E. A., and Wishart, D. E. S.: Laryngotracheo-bronchitis. A statistical review of 549 cases. Canadian M. A. J., 56:8-15, 1947.
14. Spooner, R. D.: An epidemic of acute laryngotracheo-bronchitis in Toowoomb. M. J. Australia, 2:812-4, 1949.
15. Weinstein, S.: Surgical management of the croup. Eye, Ear, Nose, Throat Monthly, 26:488, 1947.

ROUTINE CHEST EXAMINATIONS IN A PRIVATE GENERAL HOSPITAL

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IN NOVEMBER, 1950, a program was instituted calling for routine roentgen examination of the chests of all persons admitted to St. Joseph's Hospital in Saint Paul. This report is prepared in the belief that our experiences, reviewed after one year of operation of the plan, will be of interest and of value to other groups and individuals concerned with such programs.

The need and benefits of chest surveys, in general, and for hospitalized persons, in particular, are generally accepted. Prior to the institution of the routine examination at St. Joseph's Hospital, an intern and a nurse, who previously had negative tuberculin reactions, became seriously infected with pulmonary tuberculosis during one year. Both recovered after prolonged treatment but the experience proved to the hospital authorities the great responsibility of discovering infectious tuberculosis in patients admitted to the institution. The next requirement was to interest the hospital staff in the project. Both of us were deeply concerned with the problem. We arranged a staff meeting at which Dr. Jay A. Myers of Minneapolis discussed the importance of the procedure. It had been anticipated that the staff physicians of the hospital might object to the plan on the grounds of generally high hospital costs. However, there was a very favorable reaction to Dr. Myer's speech. In general, the staff supported the proposal to x-ray the chests of all persons admitted.

St. Joseph's Hospital has approximately 10,000 admissions yearly, exclusive of the pediatric service. It was decided that a survey for detection of pulmonary disease could be best accomplished by photofluorograms rather than standard sized films. It was further decided that 4 by 5 inch film best meets the necessary compromise between cost and diagnostic reliability. Incidentally, films of this size are easy to process, do not take unreasonably large filing space and are readily available for future study after filing. Previous experience by one of us (J.P.M.) had shown that the photoroentgen machines routinely offered by the manufacturers were not entirely satisfactory for examinations of all patients. A 300 milliampere transformer was specified when ordering the unit, in contrast to the 200 milliampere transformer ordinarily furnished. The results have been better than expected not only for large patients, difficult to radiograph, but also for average individuals. The exposure time can be made short in all cases, as an abundance of electrical power is available.

The photoroentgen unit at St. Joseph's Hospital is located about 150 feet from the admitting office. We feel very strongly that even this short distance is a distinct disadvantage in that it reduces the number of admission films obtained. Ideally, the unit should be adjacent to the admitting office or, even better, should be directly connected with that office. A compromise must be made in existing plants. New hospital buildings of 150-bed capacity or more should be planned with space available to the admission department for a photoroentgen unit. Smaller institutions might be better off by making 14 by 17 inch roentgenograms in the established roentgen department. Here, too, plans must be made for the additional load on the department.

The St. Joseph's Hospital unit is installed on the same floor as the admitting office, in a room formerly used for patients' beds. The room is large enough to accommodate carts and wheelchairs. Dressing rooms are not necessary, as we have never encountered any serious difficulty in making the examination with the patients clothed. We do not have a waiting room for the unit, but a small one would be desirable. This could well be used as a conference room except between the hours of 3 to 5 P.M. when most hospital admissions take place. These are the only hours when there is any appreciable delay in caring for patients at the photoroentgen room.

We felt, and still do, that processing of the films can best be done in the regular roentgen department. This eliminates the necessity of providing space for a separate darkroom for the unit. In addition, it is much cheaper to purchase a sufficient number of cassettes and hangers to last for a twenty-four-hour period than it is to install processing facilities near the photoroentgen unit separate from the Department of Roentgenology.

The staff to handle the unit is not a self-sustaining one. That is, our staff does not have the facilities for handling films and records for round-the-clock operation. It does not seem that there is any private hospital in Minnesota of sufficient size to justify such a complete staff from the financial point of view nor should such a staff be necessary from the standpoint of efficiency. St. Joseph's Hospital employs, on an hourly basis, student technicians to operate the unit from 2 to 6 P.M. each day. During the remainder of the time, the admitting office personnel is responsible for the procedure. It is essential that someone, adequately trained, be available to make examinations at all hours of the day and night. One must constantly impress upon all people concerned, the importance of striving to examine every patient admitted in order that the whole program may be successful.

During the first year of operation, 9,745 hospital patients, exclusive of pediatric patients, were admitted and 6,292 patients had routine admission films. Routinely examined were only 65 per cent of admissions, but the showing is not as poor as it seems at first glance. Patients admitted with orders for chest x-rays do not get routine examinations. Also, patients who have had chest examinations within six months previous to admission are not required to be again examined. By checking records, we found that for the month of July, 1951, chosen arbitrarily, 92 per cent of the patients admitted had either photofluorograms or standard roentgen examinations made of the chest. In January, 1951, chosen because the program was just getting under way, 70 per cent of the patients had chest x-rays of some kind. Our greatest difficulty comes in seeing to it that obstetric patients and those injured in any degree receive the routine examination. Such persons are frequently admitted under trying circumstances.

It is very difficult to get a routine examination once the patient has been admitted. The technician on duty checks with each floor daily. An attempt is made to get unexamined patients sent to the unit. Our percentage of patients examined proves this attempt is not too successful. However, we feel certain that the results will improve as time goes on and more of the hospital personnel become educated to the importance of the plan.

The patient is taken by the admitting clerks to the photoroentgen room before being taken to his hospital room. There is seldom sufficient delay to make this a hardship. The films are developed during the evening by the x-ray technician on emergency call. Roentgenograms taken during the night are developed at 7 A.M. when the regular work of the roentgen department begins. In this way, all roentgenograms are ready for reading early in the morning and we try to have the reports on the charts by 9:30 A.M. The films are filed by hospital number in the x-ray department in specially adapted cabinets. Duplicate reports, 4 by 5 inches in size, are filed with the films and the original is sent to the floor where it is glued to the first sheet of the chart. As a time saver, rubber stamps showing the most common findings have been made up. These findings are stamped directly on the filed film and on the report which goes to the chart.

This record keeping is admittedly simple. Such simplicity accomplishes saving of money, time and personnel. However, it does reduce the research and teaching value of the project. We believe that these functions should be left primarily to subsidized hospitals or individuals whether they be subsidized by public or private funds. Institutions depending for their support upon private fees are obligated to use those fees for private benefits. An elaborate system would also be necessary if the private hospital were to become engaged in a large-scale follow-up program. The primary reason for routine admission films is to protect patients and employes from infectious tuberculosis. Photoroentgen units function only secondarily as diagnostic setups.

The hospital, because of its responsibility to its patients and employes, does have the right to see to it that infectious tuberculosis is recognized or ruled out in any given chest lesion. It also has the right to insist that any necessary precautions be carried out when infectious tuberculosis is discovered. Beyond that, the individual members of the staff and medical organizations at the staff level and upward are responsible for subsequent diagnosis, observation and treatment of patients having lesions which are noninfectious. We do not believe that a long range follow-up system is the responsibility of a private general hospital.

We do think that the records should be available to qualified individuals or organizations who are responsible for such follow-up.

The patients are charged $1.50 for the service. This was agreed upon by the roentgen department and the hospital administration at the outset and has subsequently been approved by the Minnesota Radiological Society. We feel that there should not be a profit but that the activity should be self-supporting. A profit would probably defeat the purpose of the survey. On the other hand, the findings are of sufficient value to the individual to make it worth his while to underwrite his share of the money and effort expended by those responsible for the project.

Incidentally, a few staff members objected to the institution of this program on the grounds that it was a step in the direction of socialization. Our answer is that we, as private physicians and hospitals, are running this show and that public health authorities are not taking work from us or shoving the procedure down our throats. Actually, we are forestalling such steps. The appearance of public health authorities in this and similar activities is bemoaned by many physicians who, at the same time, fail to take advantage of the progress offered to them by the medical profession. Their lack of interest and inertia allows them to fall behind in following modern methods. They are not aware of the diagnoses they are missing and the good they may do their patients.

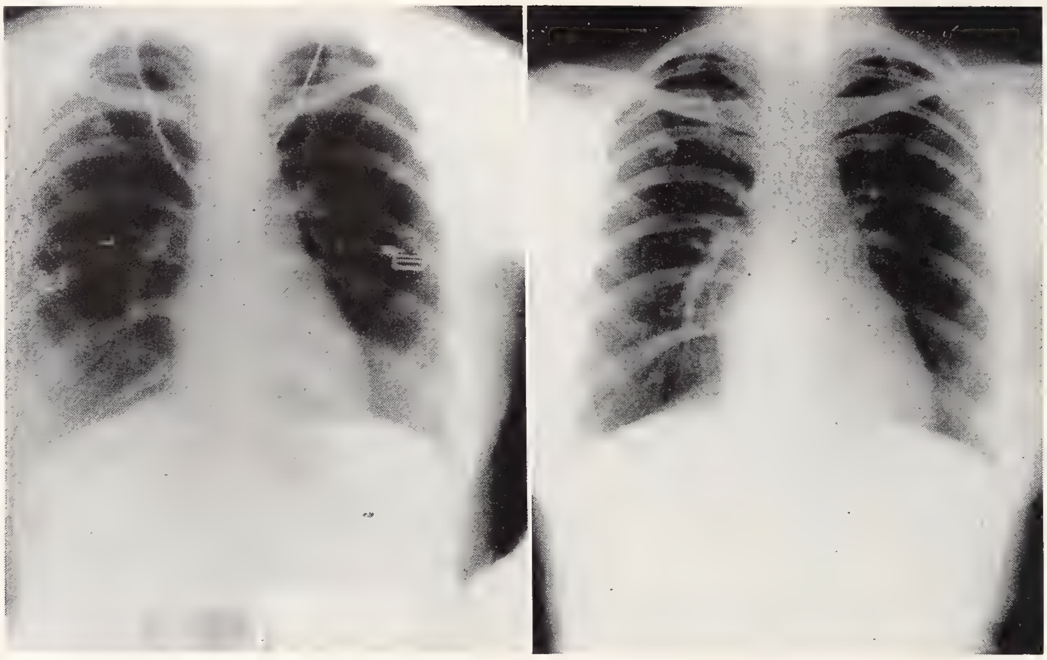


Fig. 1. *(a)* Photofluorogram showing apparently rather large lesion in right lung at level of 1st and 2nd interspaces anteriorly. *(b)* Standard sized film of the same individual showing insignificant lesion which had not changed over several years.

Anyone experienced in the interpretation of standard chest roentgenograms, will have little difficulty in dealing with photofluorograms. This is due to the character of the films which magnify findings and to the desire on the part of the interpreter never to miss a lesion. Actually, I believe that there is no more, and probably less, chance of missing a small lesion than on 14 by 17-inch films. Some roentgenologists state that they are willing to use 4 by 5-inch films for diagnoses rather than simply for screening but we believe these roentgenologists are overenthusiastic. The comparison is somewhat similar to the familiar one of the relative merits of a good little man versus a good big man (Fig. 1).

Many recheck films taken with standard methods turn out to show no lesions or insignificant findings. Never should a lesion prove to be tuberculous that had previously been interpreted as non-tuberculous on the photofluorogram. A definite diagnosis should be made from the miniature film only in very typical cases (Figs. 2 and 3). Abnormalities of the cardiac shadow are frequently under-read. Photofluorograms distort the heart outline slightly because of the shorter target-patient distance and there seems to be an insurmountable tendency to overestimate this distortion in interpretation.

In addition to the primary purpose of the survey, namely—to discover infectious tuberculosis, there are certain other advantages noted. Observation of the chest often provides a shortcut to the final diagnosis even in the absence of pulmonary symptoms. We believe routine chest examination is as important in the detection of disease as routine urinalyses and blood counts. For instance, the discovery of a tumor of the lung may eliminate many diagnostic studies. Bron-

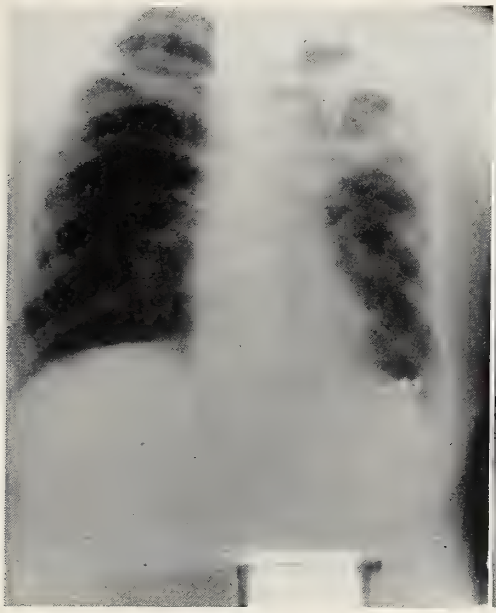


Fig. 2. Photofluorogram showing tuberculous cavity, clinically unsuspected, in a patient admitted for regulation of diabetes. This was the only roentgen examination made and the patient was admitted to a sanatorium within twenty-four hours of admission to St. Joseph's Hospital. Tubercle bacilli were found on the first sputum examination.

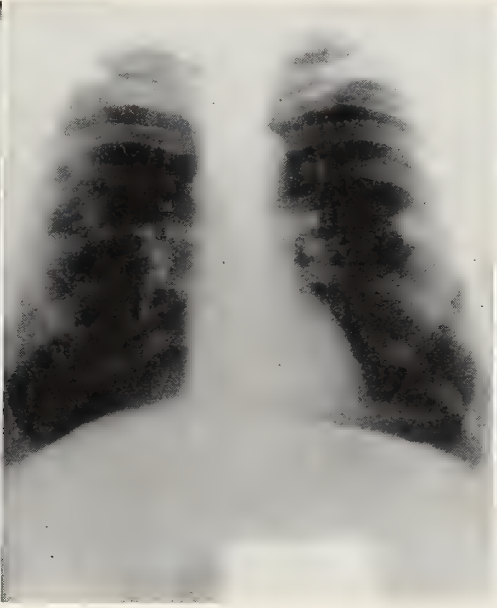


Fig. 3. Photofluorogram showing bilateral pulmonary metastases. The patient had carcinoma of the stomach.

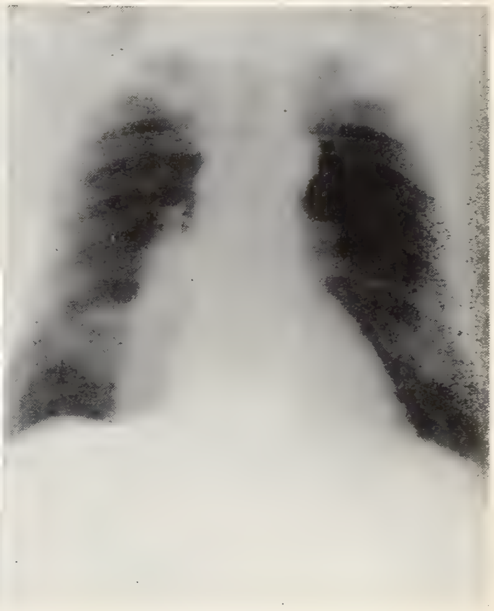
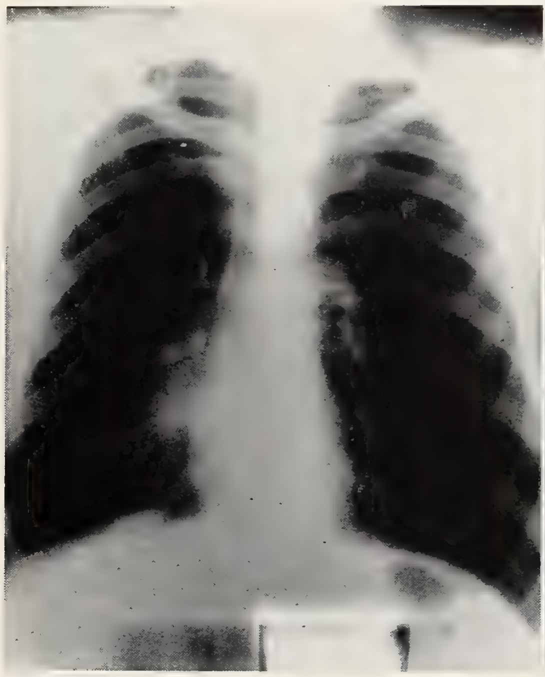


Fig. 4. Photofluorogram of patient admitted for cholecystectomy. Density to right of heart subsequently shown to be dilated esophagus due to cardiospasm. Patient well compensated for this lesion but precautions were taken to prevent aspiration of esophageal content at operation.



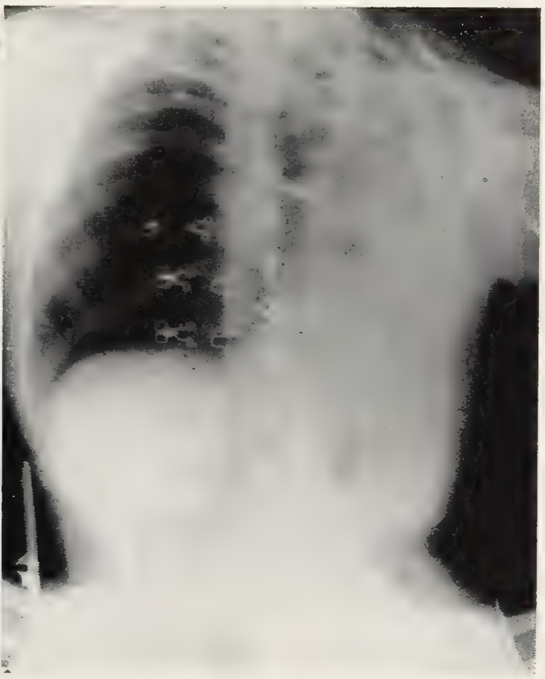


Fig. 5. *(left)* Photofluorogram showing carcinoma at right hilus.
Fig. 6. *(right)* Photofluorogram showing clinically unsuspected atelectasis of the left lung due to tuberculosis in a patient admitted because of uterine bleeding.

chiectasis with complete collapse of a lower lobe was found in a young patient admitted as a rheumatic fever suspect. Discovery of pertinent findings not related to the reason for hospitalization may be made (Fig. 4). The total time of hospitalization is frequently reduced by more speedy diagnoses. This is an advantage both to the patient and to the hospital which tries to render service to as many individuals in the community as possible.

There is an appreciable financial saving to the hospital by use of miniature films in routine employe and nursing staff checkups. Practically all private hospitals have at least yearly roentgenograms made of the chests of all persons working at the institution. Considering the film alone, several hundred dollars are saved annually by the use of photoroentgen methods in sizable establishments. Such methods are perfectly adequate for this work. This is true because the miniature film is a screening device and not a diagnostic tool.

In conclusion, we would like to present in Table I a summary of the results of the first year of operation of a photoroentgen unit in a moderate sized private general hospital.

TABLE I

Tuberculosis	
Patients now undergoing active treatment	10
Patients with reinfection type, significance undetermined	200
Tumors	
Primary, including lymphoblastoma	9
Metastatic	8
Cardiac Abnormalities	
Excluding left ventricular enlargement	136
Aortic Abnormalities	76
Pleural Effusion (non-tuberculous)	14
Pneumonia	49
Mediastinal Lesions	
Other than Lymphoblastoma	4
Diaphragmatic Lesions	
Excluding adhesions	10
Pulmonary Cyst	1
Pneumothorax (spontaneous)	3
Pleural Thickening	64
Atelectasis (mostly disc-like)	37
Others, rib-fractures, rib anomalies, scoliosis, etc.	
Of doubtful or no significance	236
Lesions noted on films but not followed in hospital	81
Total Lesions Found	848

MEDICAL MOTION PICTURES

UTERINE CANCER: THE PROBLEM OF EARLY DIAGNOSIS: 16 mm., color, sound, showing time 21 minutes. Sponsored by the American Cancer Society and the National Cancer Institute. Produced in 1951 by Audio Productions, Inc., New York. Procurable on purchase from the American Cancer Society, 47 Beaver Street, New York, or on loan from state cancer societies and state health departments.

The incidence of cancer of various sites in the female genital tract (International Classification) is given, with survival rates indicated for each. Symptomatology and aids in diagnosis are visually presented in animated drawings for each stage of cervical cancer, including stage O. The role of cytology in early detection is stressed, its technique visually described, and diagnostic criteria illustrated. Dr. Papanicolaou sounds a note of caution in using the method in diagnosis, by indicating that a positive smear should be confirmed as a matter of routine by biopsy and tissue diagnosis. The Schiller test and methods of biopsy are included.

The film calls attention to the importance of a complete physical examination, bimanual examination, visual inspection of the cervix, rectal examination, and aspiration of the cul de sac, together with this very simple method of securing cells from the cervical canal. Several case reports are shown to illustrate these points. It is presented entirely from the standpoint of early diagnosis of uterine malignancy. It does not include a discussion of treatment. The picture is well organized. The photography, animation, and narration are excellent, and the film is highly recommended for the general practitioner, the advanced medical student, and hospital meetings.—*J.A.M.A.,* Feb. 2, 1952.

President's Letter

MEETING OF THE YEAR

If membership in the Minnesota State Medical Association offered only one advantage—the opportunity to attend and participate in the annual scientific program and convention, I am certain that the membership rolls of the Association would not suffer any appreciable loss.

In this three-day session, Minnesota physicians are provided with an intensive and extensive survey of medical and surgical developments—this by way of lectures, symposia, round-table discussions, demonstrations and exhibits. They are afforded the chance to assist in shaping organizational policies and programs. This meeting often serves as an annual renewal of friendships which often lapse during the year under the pressure of distance and busy schedules.

This year the meeting is scheduled for Minneapolis. On May 26, 27 and 28, a substantial number of the state's physicians will be found at the Minneapolis Auditorium, absorbed in consideration and evaluation of medical advances.

The Radisson Hotel will be convention headquarters, with special luncheon and dinner meetings slated for the Radisson and other nearby meeting places. The annual banquet this year, on Tuesday night as always, brings an outstanding speaker, Dr. John Fulton, of the medical history department, Yale University, who will speak informatively, but amusingly, on "Rabelais and Modern Medicine." The Distinguished Service Medal, Fifty Club membership certificates and the Southern Minnesota Medical Society medal will be presented at the banquet.

The Hennepin County Medical Society will entertain at an open house program Monday night, and there will be the customary choice of outdoor sports and other entertainment during the convention.

The scientific program will attain an exceptionally high level of interest and information, and I am sure that no member of the Association will want to forego the privilege of attending.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

MEDICAL EDUCATION ASSISTANCE

TO THOSE who have given the financial dilemma of the medical schools of the country due thought, it seems highly essential that the schools be kept financially independent of federal support. The American Medical Education Foundation has been established for the purpose of providing financial assistance for medical schools, both those privately and state supported.

It is believed that the millions of dollars needed yearly by the medical schools, in addition to their present sources of income, can be raised with a little co-operation on the part of the variously interested parties. It has been pointed out that each medical graduate has paid in tuition for about an eighth of the cost of his medical education. It would be rather difficult to refute the argument that each physician today is in debt to his alma mater to the tune of several thousand dollars. If 100,000 physicians were to contribute 100 dollars each to the support of his alma mater, the total of ten million collected would solve the problem. Many cannot make this annual repayment, but on the other hand the majority can. The realization of the need and the justice of the request is essential, and that is the function of the American Medical Education Foundation.

The American Medical Education Foundation published the first issue of *The Foundation* in February, 1952. Its purpose is to broadcast information about the Foundation's activities, and future issues will appear from time to time. The campaign for raising funds for 1952 began April 1 and will continue until June 30.

The Foundation, in 1951, raised some $745,000 from 1,811 individual physicians, 33 organizations and 33 lay friends. While the total was far short of the goal set, the result is not too discouraging for the organization's first year of existence. When it is considered that, of the total, $500,000 was contributed by the AMA and $100,000 by the California State Medical Association, it is evident that comparatively few physicians contributed individually. Doubtless, a much better showing will be made in 1952.

It seems appropriate that other State Medical Associations should follow the lead of the California State Medical Association which with a 11,000 membership contributed $100,000 and South Carolina which with a 1,100 membership sent in $10,000 to the Foundation.

A further means of providing a substantial support for the Foundation was suggested by Dr. John W. Cline, AMA president, at the annual Congress on Medical Education and Licensure held in Chicago in February. The AMA Trustees approved, in principle, a plan whereby the AMA as a corporation would accept patents for medical discoveries made by member physicians. Royalty would be turned over to the Foundation for distribution to medical schools.

It is of interest that a new method for distributing the Foundation money has been adopted. Gifts made in 1952 may be designated for a specific medical school whether it is privately endowed or state supported. Such earmarked contributions will be added to that medical school's share of undesignated gifts. Thus, an alumnus may be sure that his contribution will go to his alma mater. In addition, in order to eliminate possible competition with fund-raising campaigns of the individual medical schools, the Foundation will give appropriate recognition in its annual report to those physicians who made gifts directly to a medical school.

The medical schools are not dependent entirely on the medical profession for the solution of their financial difficulties. Eleven states in the South contributed $1,091,500 to a common fund for the use of medical schools in the South. A similar plan is under way for eleven states in the West. The legislatures of five states, Colorado, Montana, New Mexico and Oregon, have already approved the plan, and it is expected the other six will follow suit. This seems like a much more reasonable solution than to use federal funds, collected in the states, sent to Washington and only in part returned to the medical schools of the states.

We have made previous editorial mention of the National Fund for Medical Education which has been established with the sponsorship of industry, pharmaceutical houses, organized labor, agriculture, scientific and educational foundations to which contributions to the American Medical Education Foundation are funneled.

The co-operation of the various interests mentioned could well provide the funds required to keep the medical schools in the black, thus obviating the necessity for federal support.

Contributions, earmarked for any medical school, may be sent to the American Medical Education Foundation at AMA headquarters, 535 North Dearborn Street, Chicago, Illinois.

M.T.(ASCP)

A NEW PROFESSION — Medical Technology—has rather rapidly come into existence.

Prior to 1928, the qualifications of the laboratory technician were vague. That year the American Society of Clinical Pathologists, under the direction of Dr. Kano Ikeda of Saint Paul, set up a national registry of clinical laboratory technicians and established preschool and training standards for students. At first, high school graduates were admitted to the laboratory schools. Later, one year of college and then two years were required. Today most matriculates are college graduates.

Likewise, the American Society of Clinical Pathologists undertook the standardization of the training schools. Later, this was done in co-operation with the Council on Medical Education and Hospitals of the American Medical Association, and in 1935 the Council took over entirely.

The registered technicians organized as the American Society of Clinical Laboratory Technicians at a meeting held in Chicago in June, 1933. The next year the society's first publication, known as *The Bulletin of the American Society of Clinical Laboratory Technicians,* appeared. In 1936 the name was changed to *The American Journal of Medical Technology.*

With the increase in preschool requirements and better technical training, the term technologist was adopted instead of technician. The national society became the American Society of Medical Technologists. The purpose of the society is self betterment and the encouragement of mutual understanding between members and other medical and scientific organizations. Membership is restricted to those registered by the American Society of Clinical Pathologists.

An attempt was made to obtain the exclusive right to the letters M.T. to designate a Medical Technologist registered by the American Society of Clinical Pathologists. That having failed, the designation M.T.(ASCP) was adopted.

The standards of the Registry have been approved by the American Medical Association, the American College of Surgeons and the American Hospital Association. The AMA and the ACS, in their inspection and standardization of hospitals, stress the necessity of having registered (ASCP) laboratory personnel.

The American Society of Medical Technology is composed of numerous state societies. It holds annual meetings which until 1947 were held in conjunction with the annual ASCP meetings. With the increase in membership (about 5,000 in 1951), the Society has met independently since 1947.

Many commercial schools for the training of laboratory technicians have been established throughout the country to meet the growing demand. The graduates of these unrecognized schools are not qualified for registration with the American Society of Clinical Pathologists, nor are they eligible for membership in the American Society of Medical Technology.

The article entitled "Medical Technology" by Sister Alcuin, which appears in this issue, goes further into the distinctive features of M.T.(ASCP), about which we venture to say the average physician is quite ignorant.

The American Society of Clinical Pathologists deserves much credit for having elevated medical technology from its initial state of chaos. The American Society of Medical Technologists is to be congratulated on having established high ideals for its membership and having made a profession of medical technology.

We are indebted to Miss Frieda H. Clausen, M.T.(ASCP) of the Charles T. Miller Hospital Laboratory, Saint Paul, who is chairman of the Public Relations Committee of the American Society of Medical Technologists, for the material used in this editorial.

AS OTHERS SEE US

OFTEN a tourist who sets out to see a foreign country actually sees points of interest the native has never taken time to investigate. How many natives of the Twin Cities have ever visited the local flour mills or breweries? The impressions of an English physician* who spent last summer visiting the medical centers of Canada and the United States make interesting reading and afford food for thought.

The author made prearranged stops of two or three days at the various medical centers throughout the United States and Canada. His remarks were limited to impressions he received of the United States, and having visited our country on previous occasions, he was able to note changes and trends that possibly have escaped our notice.

His discovery of the conveniences and ultimate economy of nylon wear for a summer traveller is an interesting contribution and a recent development.

He discovered that there is more to this country than the eastern seaboard and Chicago. He also found that Chicago is not typically American with its 2 per cent of school children drug addicts, its 12,000 hopeless alcoholics who frequent skid row, its 800 bars which present nightly strip-tease shows and its daily newspaper which "in the art of misrepresenting news makes Pravda look like an inexperienced amateur." Not a pretty picture of Chicago, and he would be the first to admit that he has picked out the worst features of that large metropolis.

He was impressed by the enormous present-day demand for psychiatric treatment which may indicate a "failure of the priest and practitioner to cope with the needs of a sick society." And he mentions the concern of the present-day psychiatrists over the growth of "momism" (dependence on mother) which is so evident in the new generation. "The mistaken application of Freud's teaching to the raising of children has produced many spoiled, unhappy adolescents who are beginning only now to find out that the adult world does not automatically give them everything they want." We wonder whether there is anything distinctly new in this lack of discipline in the bringing up of children.

He realizes that the British newspapers, like other newspapers, report the more squalid things that occur in America, and this gives a false impression of life in America. Such items are considered news.

He feels it unfortunate that politics in America have been so largely in the hands of disreputable people and hopes for a change as America grows up politically. We see some slight indication that the talented youth of our country are going to enter the political arena, an indication of growing up politically. Certainly, there is much evidence of more interest in world affairs as a result of our having been forced as a nation into world leadership.

The public demand for medical research and the amount of money and equipment devoted today to this activity in our country, he found staggering. The average physician is not in a position to see this activity on the part of the many pharmaceutical houses, the numerous universities, the Veterans Administration and the various research centers. The author found the belief in dramatic, even violent, progress to be a part of 20th Century American thinking. Something new, announced in *Time*, sometimes even in advance of a medical journal, is often demanded by the public, even though its value is not yet proven.

Whether right or wrong, he feels that the profession has slipped from the high pedestal on which it stood ten years ago. He thinks the physician of today is considered less altruistic than ten years ago and is perhaps trying to run a closed shop. This impression may well be the result of the united action taken by the profession in opposing regimentation by the government. The accusation of using closed-shop methods is rather farfetched.

The author seems to resent the attack of the AMA on the British National Health Service. He has responded with the retort that without an honest local government we could not succeed with a national health service. We, in turn, wonder whether there is any essential difference between the attitude of the British and American people towards their respective governments.

The author takes a slap at our smugness in thinking that our medicine is the best in the world. He thinks we should send more young doctors over to England, which would correct this impression.

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*Meikeljohn, A. P.: The American scene. Lancet, 262:45 (Jan. 5) 1952.

While on his visit, he saw no signs that the American public wants a national health service. On the other hand, he sees, as we have seen, a threat to the private practice of medicine in the expensive building program being undertaken by the Veterans Administration. It should be an easy step to include families of veterans among those provided with medical care.

His reaction to the clinicopathological conference which has become so popular in our country is interesting. He feels that these conferences are the highest test of clinical honesty and observes that the professor need not and does not lose the respect of the students if he fails by clinical methods to reach the correct conclusion. The failure often indicates the limitation of clinical methods.

No mention was made of the remarkable change in therapeutics manifest in these United States the past ten years. It is said that 90 per cent of present-day medication was unknown ten years ago. This seems quite likely when we consider the sulfas, antibiotics, anti-histamines, glandular extracts, et cetera. The advance made in thoracic surgery during the past ten years as well as color television and its adaptation to teaching certainly should be mentioned.

Truly, it is a changing medical world.

THE GROWTH OF PREPAID MEDICAL CARE PLANS

(Continued from Page 324)

Blue Shield will be adapted to follow in the footsteps of agreements reached between hospitals and doctors.

It might be of some interest, however, to recite the measure to which Blue Shield Plans are now providing payment for the services of the profession that have been involved in this controversy for several years.

Twenty-eight of the seventy-eight Blue Shield Plans are now offering laboratory services as performed by the pathologist; forty of the seventy-eight Plans are offering diagnostic x-ray benefits as rendered by the radiologist; and fifty-six of the seventy-eight Plans are providing anesthesia benefits as rendered by the medical anesthetist.

Improvement on this rather controversial situation awaits upon the desires of the medical profession and its own established relationships with hospitals, rather than upon Blue Shield.

Although Blue Shield Plans were born, for the most part, in an atmosphere of political expediency and were accepted by some members of the medical profession as the lesser of two evils, in most instances they have found a remarkable degree of acceptance by the American public. From rather humble beginnings a short number of years ago, they have grown to the point where they are serving areas comprising most of these United States and have succeeded in enrolling more than 21,000,000 people. The growth of Blue Shield is proceeding at a rate more rapid today than at any other time in Blue Shield history. No one would dare predict a saturation point, although many of us would hope that Blue Shield would continue to grow until every citizen in the United States has been given an opportunity to subscribe to its benefits.

In spite of the amazing progress that has been made, it would be unwise and even foolish to say anything more than to admit that Blue Shield is still in its infancy. There is much to be learned about what can be done in the direction of applying insurance principles to the practice of medicine, and there is even more to be learned, both by the administrators of Blue Shield Plans and the leaders of organized medicine, in terms of persuading the practitioners of medicine that "what is good for the people is good for the medical profession."

Blue Shield is, truly speaking, an offspring of the medical profession itself. It seeks to serve the interest and the professed need of the public, and at the same time permit the medical profession to preserve its freedom and the intimacy known to be necessary in the relationship between physician and patient.

If Blue Shield is to succeed in accomplishing its avowed function, it will come as a result only of clear-headed management, and the earnest co-operation of the medical profession in the establishment of wise policies.

425 N. Michigan Avenue

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

FARM GROUPS HOLD OPPOSITE HEALTH VIEWS

Surprising as it may seem, two prominent farm groups have recently put forth programs with flagrant contradictions on health insurance in America. The one is a well-known "liberal" farm organization which states its 1952 views on the subject in capital letters: ". . . THERE MUST BE NATIONAL HEALTH INSURANCE." The other is a clear statement of ideas: "We believe that one of the greatest prerogatives of an American citizen is the right to provide for himself and family those services which can best be had by co-operative effort.

"Therefore, we favor the expansion of Voluntary Health Service and unalterably oppose the Government Compulsory Health Program. We want to maintain our freedom to choose our medical and hospital care."

The so-called "liberal" farm group maintains that everyone must be able to afford medical treatment and hospitalization, that these are life-and-death matters and should not depend on the size of a person's bank account. "Anyone needing medical treatment or hospitalization should get it at once without first having to prove he can pay," the program states. Apparently this group does not realize that the medically indigent do have a chance for free medical treatment, for, according to Dr. Frank Dickinson, director of the American Medical Association's Bureau of Medical Economic Research, "the doctors during the depression of the 1930's gave about one-third of their time in 'free services' and about one-sixth at the present time."

Favors Medical School Subsidy

The group also asserts that there is a shortage of doctors: ". . . first, that our nation have ample physicians, dentists, and nurses. But the present system has not been able to supply them. We have never had enough rural doctors. Now the doctor-nurse shortage grows worse."

The organization seems to forget, however, that it is that very system which has increased the life span of the average person twenty years and contributed to the present increased awareness of health matters, thus creating in areas where there is merely a slight maldistribution of doctors, a hue and cry that there are not enough of them.

And so the all-inclusive statement is made: "We advocate *whatever* program can best cure this shortage. Medical schooling and research are already heavily subsidized by government, but medical schools need more government money. We say give it to them." Such a blind and blanket acceptance of *any* possible program certainly would make any thinking agricultural leader hesitate to accept other policies of the group.

This group is no doubt vitally interested in its members' health facilities, but is it not also interested in how those members get those facilities? Do they want to take a chance on getting a program which would bring restrictive government controls and the accompanying mismanagement?

Opposes Prepayment Plans

The group also overlooks the great strides which have already been made by voluntary health insurance in the past years. Apparently they have not noticed that many millions of Americans are now protected from the disastrous costs of unexpected illness through voluntary plans such as Blue Cross and Blue Shield. And these strides are made under the present system which they say has not provided adequate medical care. They would rather have health insurance inspired by politicians than inspired by doctors, for they advocate:

> "Until national health insurance becomes a reality, we urge people to protect themselves with health insur-

ance carried with a co-operative insurance company. . . . We oppose medical prepayment plans inspired by doctors and hospitals and not controlled by the insurance laws that protect policyholders in true insurance companies."

DOCTOR SCORES FEDERAL MEDICAL WASTE

Manifestation of just such control and mismanagement resulting in waste is seen in the recent statement of Dr. Robert Collier Page, chairman of the National Doctors Committee for Improved Federal Medical Services. Dr. Page said: "The Government is by far the largest single employer of physicians and operator of hospitals in the country. But its vast medical plant, spread over thirty-five separate agencies, is devoid of central planning. As a result, U. S. taxpayers are nicked $2 billion a year for a disorganized program that needlessly squanders both money and professional personnel."

Confusion Reigns

After charging that confusion reigns in government medical departments because of lack of central planning, too many needless bulletins on internal procedures and methods which defy intelligent execution, too much control in places and not enough in others, Dr. Page blames much of the Government-medicine inefficiency on "Congressmen who play pork-barrel politics. All too often, the question of where a new Federal hospital should be built is decided by political considerations rather than on the basis of need and accessibility." He cites an example of a hospital built in a small town of 9,184. This hospital has "no medical director, no chief of medical services, and no patients"—although it cost $50,000 a bed to build. And the town is already adequately serviced by a 135-bed general hospital.

Dr. Page also states that Government hospital construction is seldom reconciled with community projects aided by Hill-Burton funds. "Because there is no overall program of hospital construction" the Hill-Burton plan has often "been interfered with by the construction of Federal hospitals" . . . which "offer higher pay and more security for personnel" and "has in some places seriously crippled the staffs of these community hospitals."

EDUCATION FOUNDATION PLANS BUSY YEAR

Dr. Elmer L. Henderson, past president of the American Medical Association, made the principal address at the recent conference of state leaders of the American Medical Education Foundation, and sounded the keynote for the ensuing year: "Though much was done in '51—there's more to do in '52." He stated that the year 1952 will be one filled with many decisions, none of which will be more important than that of giving added financial support to medical schools.

The one-day conference in Chicago was held to stimulate action by the individual states for the current drive which will be conducted from April 1 through June 30.

Policy Change Explained

The Foundation also inaugurated a new fund-distribution policy which was explained at this meeting: "In 1952, gifts which have been designated for a specific medical school will be added to that school's basic grant from earmarked funds. In 1951 all earmarked gifts went to the schools for which they were designated but were included with unearmarked funds in computing the basic grants. Under the new policy if Medical School A's share of the unearmarked funds is $20,000 and earmarked funds totaling $5,000 have been received for Medical School A, the school will receive a total grant of $25,000."

AMA Gives Another Half Million

As it did at the establishment of the Medical Education Foundation, the American Medical Association has given an additional half million dollars to serve as the nucleus for the year's fund. The association is also underwriting expenses of the Foundation so that all philanthropies can be directed to medical schools.

During the first year of the Foundation's operation, more than 1,800 individual physicians contributed to the total of $745,917.84 received by the Foundation. In addition, thirty-three organizations and thirty-three lay persons made contributions. A recent editorial in the *Journal of the American Medical Association* commented: "Although short of the hoped-for goal, these results may be considered reasonably satisfactory for a new undertaking of the magnitude of the Foundation."

Deans Express Appreciation

Formal thanks for funds already allocated were expressed in a resolution from the Association of American Medical Colleges thus: "Resolved, that the deans of the medical schools in assembly for their sixty-second annual meeting unanimously expressed their sincere appreciation and their enthusiastic thanks to the Directors and officers of the American Medical Education Foundation for their substantial support of medical education and for helping to focus national attention on the serious financial predicament of the medical schools."

The AMA editorial also states that the Foundation's activities have been instrumental in creating awareness of the medical schools' needs. It concludes:

> "There is much evidence that the activities of the Foundation are developing a greater awareness and interest in the needs of the medical schools on the part of physicians generally. Many physicians are recognizing for the first time the debt they owe their medical schools while many others see in the Foundation an opportunity for the medical profession to again demonstrate its willingness to aid in the advancement of high standards of medical education. . . .
>
> "The Foundation is thus off to a good start in its second year. All signs point to a successful effort which will constitute a real challenge to industry, business, agriculture and other important groups concerned with medical education to contribute generously to the solution of this important problem."

PRESENT DAY PARALLELED WITH ROMAN DECLINE AND FALL

Most historians agree that the decline and fall of the Roman Empire was due to an overabundance of ignorance, suspicion, envy, discord, selfishness, fear, bitterness and jealousy among the people and the rulers. There was conspicuous absence of science and reason, and a bigotritic centralized government prevailed. The turmoil resulted in the inevitable decline and fall.

A recent editorial in the *Journal of the Oklahoma State Medical Association* draws a similarity in this situation to today's conditions in America, stating that "today in the United States science and reason are being threatened by similar centralization of power at the seat of government."

Power Absolute; Liberty Obsolete

The editorial asserts the belief that too much power in the government is dangerous:

> "When power becomes absolute, liberty will become obsolete and the would-be Augustus Caesar will take over. Medicine looms large in the realm of science and reason, and history shows that the regimentation of the medical profession and the people in need of medical care, has served well the obsessive Caesar, psychology which prepares the way for political coercion, Decline and Fall.
>
> "At least twenty civilizations have succumbed but archeological excavations for the amazement of their successors have no appeal for the American citizenry. Yet the federalization of medicine if it comes, will give the U. S. a front seat on the toboggan that swiftly moves toward the point of no return where oblivion has enveloped successive civilizations in subterranean mold."

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

MINNESOTA LICENSE OF BREMERTON, WASHINGTON, PHYSICIAN SUSPENDED FOR FIVE YEARS FOR DRUG ADDICTION

In the Matter of the Revocation of the License of Orin P. Thorson, M.D.

The Minnesota State Board of Medical Examiners on February 15, 1952, suspended, for five years, the medical license held by Dr. Orin P. Thorson of Bremerton, Washington. Dr. Thorson was found guilty by the Board of habitual indulgence in the use of dilaudid, codeine and other derivatives of opium, between the 1st day of January, 1951, and the 23rd day of May, 1951. Dr. Thorson appeared in person before the Board and admitted the narcotic charges filed against him.

Dr. Thorson's Minnesota medical license was previously suspended by the Minnesota State Board of Medical Examiners on May 14, 1948, for a period of three years for drug addiction. Subsequently, an investigation by the Federal Bureau of Narcotics disclosed that Dr. Thorson was still addicted to the use of narcotic drugs. Dr. Thorson was born at Madison, Minnesota, September 4, 1900, and received his Doctor of Medicine degree from the University of Minnesota, June 11, 1928. Dr. Thorson practiced, for twelve years, at Northfield, Minnesota, before moving to the State of Washington.

LICENSE OF LAKE CITY PHYSICIAN SUSPENDED FOR THREE YEARS FOR ILLEGAL ISSUANCE OF FRAUDULENT NARCOTIC PRESCRIPTIONS

In the Matter of the Revocation of the License of Donald Laing Peterson, M.D.

On February 15, 1952, the Minnesota State Board of Medical Examiners suspended for three years, the medical license held by Dr. Donald Laing Peterson, Lake City, Minnesota. Dr. Peterson was found guilty by the Board of illegally issuing not less than 14 prescriptions calling for a derivative of opium, between the 1st day of February, 1951, and the 30th day of June, 1951. At that time Dr. Peterson did not have a special tax stamp required under the laws of the United States. Dr. Peterson admitted affixing the names of two Minnesota physicians, without their knowledge or authorization, to the prescriptions. The prescriptions were filled in drug stores at Redwood Falls, Mankato, Owatonna, St. James, Fairmont, Willmar, Minnesota, and Fargo, North Dakota. Dr. Peterson admitted that he diverted the morphine obtained on the various prescriptions to his own use at a time when he had no bona fide medicinal use for the morphine.

Dr. Peterson's medical license was previously suspended by the Minnesota State Board of Medical Examiners on May 12, 1944, following Dr. Peterson's plea of guilty in the United States District Court at Minneapolis, on March 8, 1944, to an indictment charging him with two violations of the Harrison Narcotic Act.

At that time Dr. Peterson was ordered by Judge Gunnar H. Nordbye to place himself in the United States Public Health Service Hospital at Lexington, Kentucky, for treatment for drug addiction. Because of Dr. Peterson's previous difficulty with narcotic drugs, he was not permitted to prescribe or dispense narcotic drugs in his practice at Lake City. Dr. Peterson was born at Casselton, North Dakota, November 7, 1908, and received his Doctor of Medicine Degree from the University of Minnesota, June 19, 1933.

MINNEAPOLIS REAL ESTATE MAN SENTENCED FOR CRIMINAL ABORTION

Re State of Minnesota vs. Adolph Charles Chamberlain.

On March 3, 1952, Adolph Charles Chamberlain, forty years of age, 4052 Vernon Avenue, St. Louis Park, was sentenced by the Hon. Rolf Fosseen, Judge of the District Court of Hennepin County, to a term of not to exceed eight years in the State Prison at Stillwater, Minnesota. However, the execution of the sentence was stayed and the defendant placed on probation for five years. As a condition of probation, Chamberlain must first serve one year in the Minneapolis Workhouse. In specifying other conditions of probation, Judge Fosseen ordered the defendant to turn over to the Probation Department, all medical instruments of every type in his possession. In addition to this, Chamberlain was ordered to delete his name from the Minneapolis Telephone Directory to aid in breaking the contact between himself and any prospective patients desiring abortions. The defendant Chamberlain had entered a plea of guilty on January 25, 1952, to an information charging him with the crime of abortion. The defendant also admitted a prior felony conviction in October, 1937, for using an automobile without the permission of the owner.

Chamberlain was arrested by Minneapolis police officers on January 21, 1952, following the hospitalization of a twenty-year-old Minneapolis divorcee who was suffering from the after effects of a criminal abortion. An investigation revealed that the defendant Chamberlain, who stated he was associated with a Minneapolis real estate concern, had aborted her by means of a catheter on January 12, 1952. The abortion, for which Chamberlain received the patient's promissory note for $150, was done in the evening at the defendant's real estate office. Chamberlain admitted that he impersonated a licensed Minnesota physician at a Minneapolis medical supply company in order to obtain instruments which he later used in doing this abortion.

When Chamberlain claimed in Court that this was the only abortion he had ever committed, Judge Fosseen indicated to the defendant that he did not believe him in this regard. The defendant also stated to the Court that he learned the technique of doing an abortion merely from a conversation with a customer to whom he had sold a house. Chamberlain holds no license to practice any form of healing in the State of Minnesota.

THE DOCTOR'S RESPONSIBILITY TO HIS PATIENT

(Continued from Page 317)

advised as to her condition. Frequently patients ask me, "Do you write my doctor?" When I assure them that I do so and add that "I had a letter from him and he is very pleased that you are progressing satisfactorily," the patient is very appreciative. After all, he still is the family doctor, in whom the patient has unlimited confidence due to his many years of guidance and medical care. There are many other important factors that can be emphasized on this vital subject.

These brief remarks, based on a consultation practice of forty-four years, are simply made, because all of us realize the importance of a close physician-patient relationship, the desire to ease our patients' suffering, both physically and mentally, and to have our patients retain that high degree of confidence without which no physician, however brilliant, is successful.

Our responsibility extends further than to the individual patient. In these days of turmoil it is our duty to be active in our community life, to enlighten the public by addresses sponsored by our county and state societies, not only on scientific subjects but also on other aspects of medical problems.

The danger of socialized medicine is ever present. Although Congress has refused four times to pass the Wagner-Murray-Dingell Bill in its various forms, other schemes are constantly developing. Ewing's proposal to provide hospital and medical care to every person over sixty-five years of age who comes under the Social Security Act, and their dependents, estimated at 143 million, the attempt to have all school children, regardless of financial circumstances, receive free medical examinations, and the ever-increasing tendency for nonservice-connected veterans to obtain free hospital and medical care, are simply entering wedges on whose foundation socialized medicine will develop. With the universal military training in effect, all of us will be war veterans of some sort in the not too distant future. In order to keep our precious American heritage of the private practice of medicine, we must be on the alert, individually contact our representatives in Congress and, collectively, one and all support the American Medical Association, both actively and financially. But for *their* activities at the grass root levels, the Lord only knows where we would be today. Let us not neglect this important duty. Our patient-physician relationship demands it.

1124 Lowry Medical Arts Building

Minnesota State Medical Association

Ninety-Ninth Annual Meeting

Minneapolis, Minnesota
May 26, 27 and 28, 1952

Program

BUSINESS SESSIONS

SATURDAY, MAY 24

Hotel Radisson

2:00 P.M.—Council ....Admiral Room
6:00 P.M.—Council ....Admiral Room

SUNDAY, MAY 25

Hotel Radisson

8:00 A.M.—Council ....Admiral Room
10:00 A.M.—Insurance Liaison Committee....Mezzanine
10:00 A.M.—Reference Committees..........Mezzanine
2:00 P.M.—House of Delegates............Gold Room
8:00 P.M.—House of Delegates............Gold Room

MONDAY, MAY 26

Hotel Radisson

8:00 A.M.—Council ....Admiral Room
12:15 P.M.—House of Delegates............Gold Room

TUESDAY, MAY 27

Hotel Radisson

8:00 A.M.—Council ....Admiral Room
8:00 A.M.—Committees ....Mezzanine
- Anesthesiology
- Child Health
- Conservation of Hearing
- Diabetes
- Editing and Publishing
- First Aid and Red Cross
- Fractures
- General Practice
- Heart
- Hospitals and Medical Education
- Maternal Health
- Ophthalmology
- Rural Medical Service

WEDNESDAY, MAY 28

Hotel Radisson

8:00 A.M.—Council ....Admiral Room
8:00 A.M.—Committees ....Mezzanine
- Cancer
- Chronic Illness
- Historical
- Hospitals and Professional Relations
- Medical Economics
- Medical Testimony
- Military Affairs
- Public Health Education
- University Relations
- Veterans Medical Service

SOCIAL EVENTS

SATURDAY, MAY 24

Dinners

Phi Beta Pi Alumni Association
6:30 p.m., Minneapolis Club
Make reservations with Dr. Howard Frykman, 1829 Medical Arts Building, Minneapolis.

MONDAY, MAY 26

Luncheons

American Medical Women's Association, Inc., Minnesota Chapter
12:15 p.m., Hotel Curtis
Make reservations with Dr. Catherine Burns
201 S. Broadway
Albert Lea, Minnesota
Open to all visiting women physicians

Minnesota Chapter, American College of Chest Physicians
12:15 p.m., Hotel Radisson, Room 118

Third Region Examiners, Civil Aeronautics Authority
12:15 p.m., Charlie's Cafe Exceptionale

Dinners

Minnesota Chapter, American Academy of General Practice
5:00 p.m., Social Hour, Junior Ballroom, Hotel Radisson
6:00 p.m., Dinner, Grand Ballroom, Hotel Radisson

Minnesota Medical Foundation, Board of Trustees
6:00 p.m., Room 118, Hotel Radisson

Minnesota Radiological Society
6:00 p.m., Edina Country Club
Dinner honoring Dr. Leo G. Rigler's completion of twenty-five years as head of the Department of Radiology, University of Minnesota. Doctors' wives are invited.

Special Meetings

Nu Sigma Nu
5:00 p.m., Social Hour, Admiral Room, Hotel Radisson

TUESDAY, MAY 27

Luncheons

Minnesota Society of Clinical Pathologists
12:15 p.m., Campus Club, University of Minnesota

Dinners

Presidential Reception
5:45 to 6:45 p.m., Gold Room, Hotel Radisson
Physicians and their wives attending the annual banquet will be guests of the Physicians and Hospital Supply Company, Minneapolis.

Annual Banquet of Minnesota State Medical Association
7:00 p.m., Grand Ballroom, Hotel Radisson

GENERAL SESSION

MONDAY, MAY 26

A.M.

8:30 Visit Scientific and Technical Exhibits...... Auditorium
Program............................West Hall

9:00 Management of Trauma and Associated States
Shock in Trauma.......IVAN D. BARONOFSKY, Minneapolis
Management of Patient with Trauma of the Chest..NATHAN K. JENSEN, Minneapolis
Athletic Injuries—DONALD R. LANNIN, St. Paul
Physical Therapy in General Practice.... MILAND E. KNAPP, Minneapolis

10:00 Question and Answer Period

Intermission

Visit Scientific and Technical Exhibits..... Auditorium
Program............................West Hall

11:00 Emergencies Occurring During Anesthesia, Their Treatment and Prevention......... F. C. JACOBSON, Duluth
Emergencies Occurring During Surgery..... DAVID P. ANDERSON, Austin
Emergencies Occurring During Immediate Post-operative Period..........JOE W. BAIRD, Minneapolis

11:45 Question and Answer Period

Afternoon

P.M.

12:15 Miscellaneous Luncheons

1:30 Visit Scientific and Technical Exhibits...... Auditorium
Program............................West Hall

2:00 Abuses of New Therapeutic Agents
Cortisone and ACTH.................... ROBERT M. SALASSA, Rochester
Antibiotics....WENDELL H. HALL, Minneapolis
Abuses of a Low-Sodium Content Diet in Heart Disease........MILTON W. ANDERSON Rochester
Banthine........R. S. YLVISAKER, Minneapolis

3:00 Question and Answer Period

Intermission

Visit Scientific and Technical Exhibits....... Auditorium
Program............................West Hall

4:00 Roentgen Diagnosis of Benign Gastric Ulcer HAROLD O. PETERSON, St. Paul

4:20 Russell D. Carman Memorial Lecture..West Hall
Clinical Aspects of Abnormal Small Intestinal Physiology..............ROSS GOLDEN
Professor of Radiology, Columbia University College of Physicians and Surgeons, New York City, N. Y.

5:00 Visit Scientific and Technical Exhibits..... Auditorium

5:15 Obstetric Manikin Demonstration..West Corridor
HUGH G. HAMILTON, Kansas City, Missouri

Evening

P.M.

6:00 Special Dinners

9:00 Open House

SPECIAL SESSION

MONDAY, MAY 26

Auditorium Stage

P.M.

2:00 Minnesota Chapter of the American College of Chest Physicians
JOHN F. BRIGGS, St. Paul, presiding
Segmental Resection in the Treatment of Pulmonary Infections .... W. ROBERT SCHMIDT, Minneapolis
Discussion...NATHAN K. JENSEN, Minneapolis

2:30 Roentgen Observations on Vascular Lesions of the Lung........LEO G. RIGLER, Minneapolis
Discussion............DAN L. FINK, St. Paul

Intermission

Visit Scientific and Technical Exhibits..... Auditorium

4:00 Treatment of Common Chest Emergencies.. THOMAS J. KINSELLA, Minneapolis
Discussion..IVAN D. BARONOFSKY, Minneapolis

4:30 Interrelationships Between Cardiac and Pulmonary Diseases .... RICHARD V. EBERT, Minneapolis
Discussion..........JOHN F. BRIGGS, St. Paul

GENERAL SESSION

TUESDAY, MAY 27

A.M.

8:30 Visit Scientific and Technical Exhibits...... Auditorium
Program............................West Hall

9:00 Simple Proctologic Procedures............. WILLIAM C. BERNSTEIN, St. Paul

9:15 The Management of Diverticulitis of the Colon..............JOHN M. WAUGH, Rochester

9:30 Treatment of Thrombophlebitis............. FREDERICK M. OWENS, JR., St. Paul

9:45 Arthur H. Sanford Lectureship in Pathology
Practical Aspects of the Rh Factor
EDITH L. POTTER, Associate Professor of Pathology, Department of Obstetrics and Gynecology, University of Chicago, Chicago, Illinois

Intermission

Visit Scientific and Technical Exhibits..... Auditorium
Program............................West Hall

11:00 Blood Transfusions and Blood Volume Expanders ....T. H. SELDON, Rochester

11:15 Functional Uterine Bleeding................ RODNEY F. STURLEY, St. Paul

11:30 Carcinoma of the Cervix..RICHARD W. TE LINDE, Gynecologist-in-Chief, Johns Hopkins Hospital, Baltimore, Maryland

Afternoon

P.M.

12:15 Miscellaneous Luncheons

1:30 Visit Scientific and Technical Exhibits..... Auditorium

Program............................West Hall

P.M.

2:00 Therapy

New Trends in the Treatment of Goiter... James J. Coll, Duluth

Treatment of Anemia........Frank J. Heck, Rochester

New Drugs in the Treatment of Hypertension..........E. A. Hines, Jr., Rochester

The Treatment of the Convulsive Disorders ....Zondal R. Miller, St. Paul

3:00 Question and Answer Period

Intermission

Visit Scientific and Technical Exhibits....... Auditorium

Program............................West Hall

4:00 Anticoagulants in Cardiovascular Disease Joseph F. Borg, St. Paul

4:15 Trends in the Treatment of Sub-acute Bacterial Endocarditis..........Joseph E. Geraci, Rochester

4:30 The Treatment of Convalescent Cardiac Cases ....Chester M. Kurtz, Associate Professor of Clinical Medicine University of Wisconsin, Madison, Wisconsin

5:00 Visit Scientific and Technical Exhibits...... Auditorium

5:15 Obstetric Manikin Demonstration..West Corridor Leon S. McGoogan, Professor (Acting Chairman), Department of Obstetrics and Gynecology, University of Nebraska, College of Medicine, Omaha, Nebraska

Evening

P.M.

7:00 Annual Banquet...............Grand Ballroom, Hotel Radisson

Presiding: W. R. Jones, President, Hennepin County Medical Society

Introduction of Mrs. C. L. Sheedy, Austin, President, Woman's Auxiliary

Presentation of Fifty-Club Certificates

Presentation of Southern Minnesota Medical Association Medal

Presentation of Distinguished Service Medal

Greetings—The Honorable C. Elmer Anderson, Governor, State of Minnesota

Presidential Address..........R. L. J. Kennedy, Rochester, President, Minnesota State Medical Association

"Rabelais and Modern Medicine"......... John F. Fulton, Yale University School of Medicine, New Haven, Connecticut

SPECIAL SESSION

TUESDAY, MAY 27

Auditorium Stage

A.M.

9:00 Minnesota Society of Clinical Pathologists

Tumor Seminar........................... Anatomy Building, University of Minnesota

Moderator............Lauren V. Ackerman, Professor of Pathology, Washington University School of Medicine, St. Louis, Missouri

9:00 Minnesota Academy of Ophthalmology and Otolaryngology ....Auditorium Stage

Management of Common Injuries and External Diseases of the Eye....Theodore R. Fritsche, New Ulm

Treatment of Nasal Hemorrhage.......... George L. Loomis, Winona

Intermission

11:00 Minnesota Academy of Ophthalmology and Otolaryngology ....Auditorium Stage

The Common Ocular Manifestations of Diabetes Mellitus......John H. Peterson, Duluth

Treatment of Conduction Deafness with Roentgen Therapy..Jennings D. M. Sjoding, Mankato

P.M.

1:00 Minnesota Society of Clinical Pathologists

Tumor Seminar (Continued)—Anatomy Building, University of Minnesota

GENERAL SESSION

WEDNESDAY, MAY 28

A.M.

8:30 Visit Scientific and Technical Exhibits..... Auditorium

Program............................West Hall

9:00 Resuscitation of the Newborn...Ellis N. Cohen St. Paul

9:15 Some Recent Advancements in the Management of Hypertension......Carleton Chapman, Associate Professor of Medicine, University of Minnesota Medical School, Minneapolis

9:45 Recent Advances in Research on Rheumatic Fever...........................Lewis Thomas American Legion Memorial Heart Research Professor, University of Minnesota, Minneapolis

Intermission

Visit Scientific and Technical Exhibits.. .. Auditorium

Program............................West Hall

11:00 Surgical Lesions of the Breast......R. F. Hedin, Red Wing

11:15 Surgical Treatment of Intractable Pain.... William T. Peyton, Minneapolis

11:30 Practical Aspects of Fluid Balance......... John F. Arnesen, Owatonna

11:45 Fractures of the Forearm in Children...... J. C. Ivins, Rochester

Afternoon

P.M.

12:15 Round Table Luncheons

1:30 Visit Scientific and Technical Exhibits..... Auditorium

Program............................West Hall

2:00 Treatment of Eczema

General Aspects..........F. T. Becker, Duluth

The Evaluation of Allergic Factors in the Cause and Treatment of Eczema......... E. T. Ceder, Minneapolis

Occupational Aspects..................... Harold G. Ravits, St. Paul

Treatment...............Robert R. Kierland, Rochester

3:00 Question and Answer Period

(Continued on Page 360)

Minnesota Academy of Medicine

Meeting of October 10, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, October 10, 1951. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 p.m. by the President, Dr. W. H. Hengstler.

There were fifty members and four guests present.

Minutes of the May meeting were read and approved.

The scientific program followed.

Dr. Donald Hastings, of the University of Minnesota, read his thesis on "Psychiatry in Medical Education."

Dr. Wesley W. Spink, of the University of Minnesota, gave a talk and showed colored lantern slides of his summer trip to Europe, particularly on Medical Observations in Yugoslavia.

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

Meeting of November 14, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 14, 1951. Dinner was served at 7 o'clock and the meeting was called to order at 8:15 p.m. by the President, Dr. W. H. Hengstler.

There were forty-two members and four guests present.

Minutes of the October meeting were read and approved.

The President appointed Dr. Charles Mayo to prepare a Memorial for Dr. A. W. Adson, and Dr. O. S. Wyatt to prepare a Memorial for Dr. Frank J. Corbett, members who had died recently, and report at a later meeting.

The scientific program followed.

Dr. Edmund Flink, of the University of Minnesota Medical School, by invitation, gave a paper on "Bilateral Adrenalectomy for Hypertension."

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

Meeting of December 12, 1951

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 12, 1951. Dinner was served at 7 o'clock and the meeting was called to order at 8 p.m. by the President, Dr. William H. Hengstler.

There were forty-nine members and one guest present.

Minutes of the November meeting were read and approved.

Dr. O. S. Wyatt read the following Memorial to Dr. Frank J. Corbett.

JAMES FRANK CORBETT

1872 - 1951

Dr. James Frank Corbett was born February 16, 1872; he died on November 6, 1951, at the age of seventy-nine. He received his medical degree from the University of Minnesota in 1896. In 1896-97, he served an internship at the Minneapolis General Hospital. He did graduate work at the University of Michigan, University of Chicago, and the Rockefeller Foundation.

In 1898, he was City Bacteriologist in Minneapolis.

In 1907, he read his Inaugural Thesis before this Academy entitled "Gastric Ulcer with Especial Reference to Malignant Change." It was also in this year that he was appointed Assistant Professor of Surgical Pathology at the University. Between the years 1910 and 1920, he read several papers before the Academy, some of which were in conjunction with Dr. James E. Moore.

In the year 1911, he was appointed Associate Professor of Experimental Surgery. He resigned this position in January 1913, and, under the reorganization, was reappointed in August 1913. He served in World War I from 1916 to 1919, and during that time he was Chief of Surgery at General Hospital in Cape May and Chief of Surgery at Walter Reed Hospital. In 1919, he was appointed Associate Professor of Surgery at the University.

In 1920, he served as President of the Hennepin County Medical Society and in 1923 was President of the Minnesota State Medical Association.

He served as Chief of Surgery at the Minneapolis General Hospital from 1921 to 1925. He was appointed Clinical Professor of Surgery in 1937, and in 1940 he became Emeritus Professor of Surgery at the University.

Dr. Corbett did considerable writing in his younger years; prior to 1928 he published about forty medical articles.

In 1942, he was made an Honorary Member of this Academy.

He was a Fellow of the American College of Surgeons, a member of the American Board of Surgery, the Minnesota Academy of Medicine, the Western Surgical Society, the American Medical Association, and the

(Continued on Page 376)

◆ Reports and Announcements ◆

INTERNATIONAL COLLEGE OF SURGEONS

A central states regional meeting of the United States Chapter of the International College of Surgeons will be held in Kansas City, Missouri, April 28 and 29, with headquarters at the President Hotel. Members of the surgical profession at large are invited to attend. The program will include general scientific sessions each morning from 9:00 to 12:00 and each afternoon from 2:00 to 5:00; luncheons followed by panel discussions each day; a social hour and dinner on the first evening with Dr. David L. MacFarlane, President of Kansas State Teachers College, as the speaker; and a buffet dinner on the second evening followed by panel discussion of a "Mystery Case," which will be a joint session with the Jackson County Medical Society.

CONFERENCE ON AGING

"Housing the Aging" is the topic for the University of Michigan Fifth Annual Conference on Aging to be held in Ann Arbor, Michigan, July 24 to 26. The three-day conference will consider the housing needs of healthy, chronically ill, confused, and disabled older people living in urban and rural areas.

The conference is directed to national, state, and local planners; physicians, nurses, and public health workers; industrial retirement counselors; welfare and social work personnel; architects, builders, realtors; safety and sanitary engineers; public and private investment and financing agencies; directors of old age homes, nursing homes, hospitals, and housing projects; and to older people themselves who are interested in contributing to the solution of the housing problem of the aging.

The conference is under the co-sponsorship of the Institute for Human Adjustment, Schools of Architecture, Business Administration, Social Work, Public Health, and the Medical School, Extension Service and Summer Session of the University of Michigan; the Michigan State Medical Society; the Committee on Aging and Geriatrics of the Federal Security Agency, Washington, D. C., and the Housing and Home Finance Agency, Washington, D. C.

Conference registration materials may be obtained by writing to Dr. Wilma Donahue, Institute for Human Adjustment, Room 1510, Rackham Building, Ann Arbor, Michigan.

MICHAEL REESE HOSPITAL POSTGRADUATE SCHOOL

The Michael Reese Hospital Postgraduate School, Chicago, is offering the following courses during April and May:

A two-week course in "Diseases of the Endocrines—Physiology and Diagnostic Methods." This full-time, intensive course will meet from April 28 to May 9 and will be under the direction of Dr. Rachmiel Levine, director, Department of Metabolic and Endocrine Research. Basic principles will be presented with a review of recent advances in the field. The course is designed for clinical application.

A two-week course in "Recent Advances in Internal Medicine," from May 12 to 24. This full-time intensive course encompasses a systematic review of recent advances in the various branches of internal medicine. The clinical and didactic material will be presented by members of the Department of Internal Medicine, other clinical departments and the Division of Laboratories and Research.

A one-week course in "Recent Advances in Pediatrics—Diagnostic and Therapeutic Measures," from May 26 to 31. Recent advances in pediatrics, including the presentation of clinical as well as didactic material. For the pediatrician and other physicians who limit their practice largely to children. The course will be presented by the Department of Pediatrics and co-operating departments.

Further information about any of these courses can be obtained by writing to Dr. Samuel Soskin, Dean, 29th Street and Ellis Avenue, Chicago 16, Illinois.

ANESTHESIOLOGY SYMPOSIUM

The University of Pittsburgh School of Medicine, Department of Surgery, Section of Anesthesiology announces a postgraduate symposium on the basic sciences related to anesthesiology, to be held at Pittsburgh June 2 to 6 in co-operation with the Department of Anesthesiology of the St. Francis, Allegheny General, and Mercy Hospitals. The course will be limited to fifty participants. Registration fee is $25.

Registration and full particulars can be obtained from the Chairman of the Committee on Graduate Medical Education, University of Pittsburgh School of Medicine, 3941 O'Hara Street, Pittsburgh 13, Pennsylvania.

MINNESOTA ACADEMY OF GENERAL PRACTICE

The Hennepin County Academy of General Practice will sponsor the dinner and program of the Minnesota Academy of General Practice, which will be held in the Ballroom of the Radisson Hotel, Minneapolis, the evening of May 26, 1952. A social hour at 5:00 p.m. will precede the dinner scheduled for 6:00 p.m.

Speakers for the event will be:

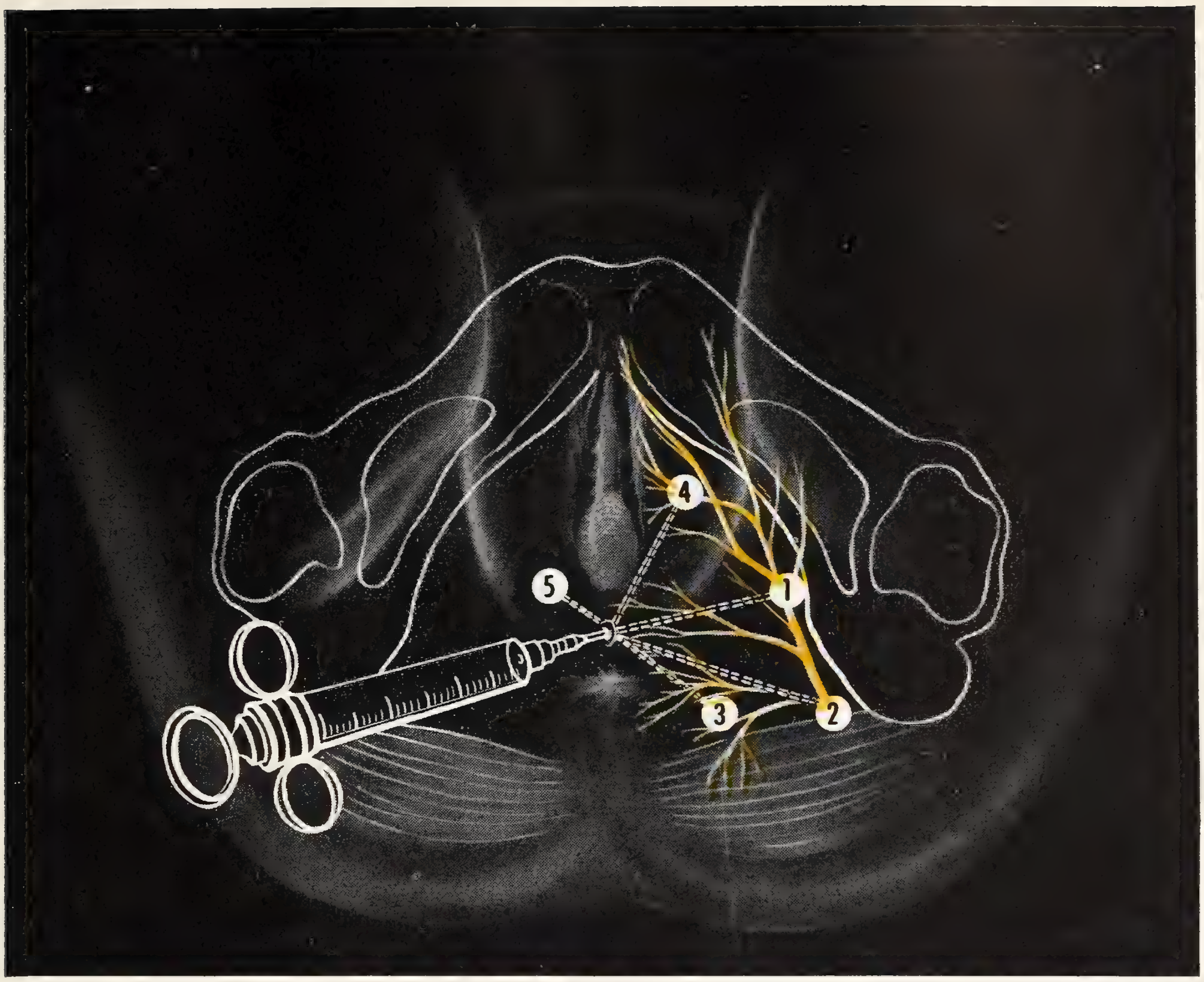
R. B. Robbins, M.D., Camden, Arkansas, Past President of the American Academy of General Practice
"Medicine in This Changing World"

Edward H. Rynearson, M.D., The Mayo Clinic, Rochester, Minnesota
"Is Obesity an Endocrine Problem?"

MINNESOTA PATHOLOGICAL SOCIETY

Dr. C. Keith Simpson, Reader in Forensic Medicine, University of London, and Supervisor of Medico Legal Post-Mortems at Guy Hospital, will give a special lecture

(Continued on Page 360)



Sites for injection of local anesthesia in obstetrics. Sites 1 to 4 should be similarly injected on the contralateral side. Site 5 is for episiotomy. Adapted from Johnson, O. J.: Nerve Block in Painless Childbirth, J.A.M.A. *145*:401 (Feb. 10) 1951.

Pudendal Block in Obstetrics Simplified with **ALIDASE**

Using a local anesthetic with hyaluronidase, Heins[1] reports: "Complete perineal anesthesia is practically instantaneous. . . . The technique of pudendal block is greatly simplified. The operator does not have to inject the nerve per se, but infiltration in the vicinity of the nerve will accomplish an effective block."

Baum[2] states: "The use of hyaluronidase is found to be a safe and simple method for increasing the efficiency of pudendal block in obstetrics and for overcoming many of the objections to this type of obstetrical anesthetic."

ALIDASE® —highly purified, well tolerated brand of hyaluronidase—definitely shortens the period between completion of the block and establishment of operating analgesia. Swelling, induration and discomfort are almost negligible with Alidase.

[1] Heins, H. C.: Pudendal Block with Hyaluronidase, J. South Carolina M. A. *46*:309 (Oct.) 1950.

[2] Baum, F. E.: The Use of Hyaluronidase in Pudendal Block, Am. J. Obst. & Gynec. *60*:1356 (Dec.) 1950.

ACCEPTED
COUNCIL ON PHARMACY AND CHEMISTRY
AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

Therapy for Vascular Headache to Reverse the Physiologic Disturbance

Headache, a problem encountered in all kinds of medical practice, may occur in association with any of a variety of disorders, some organic, other purely functional.

Among the several types, functional headaches present the greatest problem because of their obscure etiology and recurrent nature.

Among these are:

- Migraine (both classical and variant forms)
- Tension headache
- Psychogenic headache
- Histaminic cephalgia

Wolff and his co-workers established that the pain of these headches is due to disturbance of the tonus of cranial blood vessels — hence the term *vascular headaches.*

The craniovascular changes associated with the several phases of the typical migraine attack are:

Vasoconstriction — to which the visual prodromata are attributable. It is possible to abort the attack during this phase in all but a few cases. (See treatment below.)

Vasodilatation — as the vessels lose their tone, exaggerated pulsations set in, resulting in the throbbing pain which characterizes vascular headache. Treatment for the attack is still effective during this phase. (See below.)

Vessel Edema — if the vasodilation continues for too long, vessel walls become edematous; this changes the character of the pain to a steady, intense aching. The attack can now no longer be checked, even with maximum dosage of specific drugs. *Moreover, sustained headache often induces reflex neck muscle tension, a source of residual pain.*

Therapy: 1. Reduce the frequency of attacks — psychotherapy and regulation of living habits to avoid fatigue and nervous tension.

2. Relieve the acute attack — of the numerous drugs which have been tried, ergotamine and its derivative preparations have proved most effective. The newest product is oral tablets of Cafergot®, N. N. R. (ergotamine with caffeine 'Sandoz'). When dosage is adjusted to the needs of the individual, Cafergot will give good relief in 85% of cases. It enables a greater number of patients to benefit from early administration since the oral route simplifies treatment as compared to parenteral therapy.

The dosage procedure is:

1. Take 2 tablets at first sign of the attack.
2. If attack continues, take one additional tablet every ½ hour until attack is terminated *(max. 6 tabs. per attack).*

Many migraine patients delay taking medication until the attack is at its height. Explicit dosage instructions may be forgotten unless the patient comes to realize their importance. Therefore, to encourage adherence to correct procedure, we have prepared pads outlining detailed dosage instructions. Supplies of these INSTRUCTION SLIPS will gladly be sent upon request.

GENERAL REFERENCES: DeJong, R.: Chicago M. Soc. Bull 54: 106, 1951. Friedman, A.: Modern Headache Therapy, St. Louis, C. V. Mosby Co., 1951. Wolff, H.: Headache and Other Head Pain, N. Y., Oxford Univ. Press, 1948.

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(Continued from Page 358)

on "Crime and the Doctor" under the sponsorship of the Minnesota Pathological Society, Tuesday, May 20, 1952. The lecture is scheduled to be given at 8 p.m. in Owre Hall (formerly Medical Science Amphitheater) University of Minnesota.

MINNESOTA STATE MEDICAL ASSOCIATION

(Continued from Page 356)

Intermission

Program..........................West Hall

3:15 Exstrophy of the Urinary Bladder—A discussion of anatomical and surgical principles applicable to its repair, with a preliminary report of a case—
Theodore H. Sweetser, Minneapolis
Tague C. Chisholm, Minneapolis
Willis Thompson, Minneapolis

ROUND TABLES

Italian Room, Radisson Hotel

MONDAY, MAY 26

The Induction of Labor—Hugh G. Hamilton, Kansas City, Missouri
Leon S. McGoogan, Omaha, Nebraska

TUESDAY, MAY 27

Mezzanine, Hotel Radisson

Blue Shield................Edwin J. Simons, St. Paul
Mr. F. Manley Brist, St. Paul
Diagnosis of Poliomyelitis..F. G. Hedenstrom, St. Paul
Problem of Obesity........C. F. Gastineau, Rochester
Diabetes During Pregnancy..John R. Meade, St. Paul
Rodney F. Sturley, St. Paul
Immunization of Infants..George B. Logan, Rochester
Bone Marrow Study in Blood Dyscrasia..........
John B. Moyer, Duluth
Value of Flat Plate in the Diagnosis of Acute Conditions of the Abdomen....Elmer C. Paulson, Worthington
Management of Eye Injuries........F. F. Wippermann, W. J. Bushard, J. P. Wendland, Minneapolis; J. C. O'Neill, Duluth
Injuries of the Hand..Meyer Z. Goldner, Minneapolis
The Correlation of Clinical and X-Ray Pelvimetry
Hugh G. Hamilton, Kansas City, Missouri
Leon S. McGoogan, Omaha, Nebraska

WEDNESDAY, MAY 28

Mezzanine, Hotel Radisson

Drug Therapy in Parkinsonism........S. K. Shapiro, Minneapolis
Obstetric Anesthetics and Analgesias...............
Leonard A. Lang, Minneapolis
Common Skin Diseases..Francis W. Lynch, St. Paul
Management of the Chronic Cardiac Patient......
John J. Boehrer, Minneapolis
Surgical Treatment of Atelectasis of the Newborn
E. B. Berglund, W. P. Eder, T. C. Chisholm, O. S. Wyatt, Minneapolis
The Effects of Cortisone and ACTH on Infection
Lewis Thomas, Minneapolis
Value of Stellate Block in Management of Stroke...
C. H. Millikan, Rochester
Evaluation of Compensable Disabilities...Carl O. Rice, Minneapolis
Dehydration Therapy in Cardiac Disease...........
David M. Craig, St. Paul
The Doctor in Court........Mr. Raymond A. Scallen, Minneapolis

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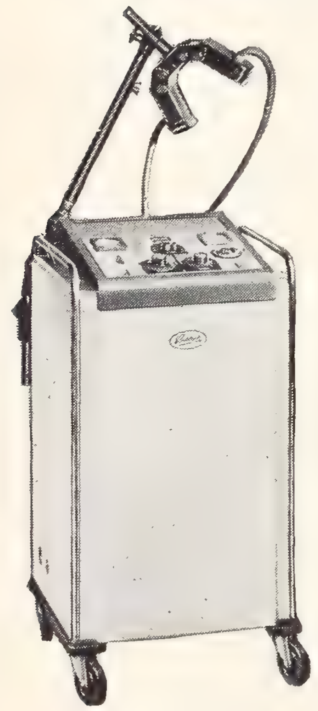

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Woman's Auxiliary

PRESIDENT ANNOUNCES ANNUAL MEETING

Mrs. F. P. Moersch

Plans for the 1952 annual meeting of the Woman's Auxiliary to the Minnesota State Medical Association have been completed and offer an interesting and stimulating slate of events for doctors' wives from throughout the state.

This year's meeting will be held May 26, 27 and 28 in Minneapolis, with the Hotel Radisson as headquarters. Registration opens at 8:00 a.m. each morning, and there will be advanced registration beginning late Sunday, May 25.

The Executive Board meeting will begin at 11:00 a.m., Monday, May 26, at the College Women's Club, with a luncheon following at 1:00 p.m. At 3:30 p.m., Monday, the annual tea honoring state officers will take place at the Swedish Art Institute.

The annual meeting will be held at the Woman's Club of Minneapolis beginning at 10:00 a.m. on Tuesday, May 27, with the annual luncheon following at 1:00 p.m. On Wednesday morning, May 28, there will be the annual breakfast. Annual meeting programs will be mailed to members just before the meeting.

Another interesting feature of this year's meeting will be guided tours through General Mills' kitchen and several Minneapolis radio stations.

Your president urges you to take this opportunity to become better acquainted with your state auxiliary organization. A warm, friendly welcome will await you in Minneapolis. Be sure to attend.

MEDICAL TECHNOLOGY

(Continued from Page 335)

is known as the Minnesota Society of Medical Technologists and holds a charter from the ASMT. The MSMT is incorporated in Minnesota. Within the state society are district societies of which there are five geographically but four functionally. The largest and oldest is the Twin City organization. The second is the Arrowhead. The other two include the area in which the Mayo Clinic is located, and the area embracing an angular territory with Bemidji and St. Cloud as the largest centers.

The intended purpose of this article is to solicit the aid of the medical profession in solving the problems confronted by registered medical technologists (ASCP). Knowledge is the first attribute and in the wake of this all else adjusts itself.

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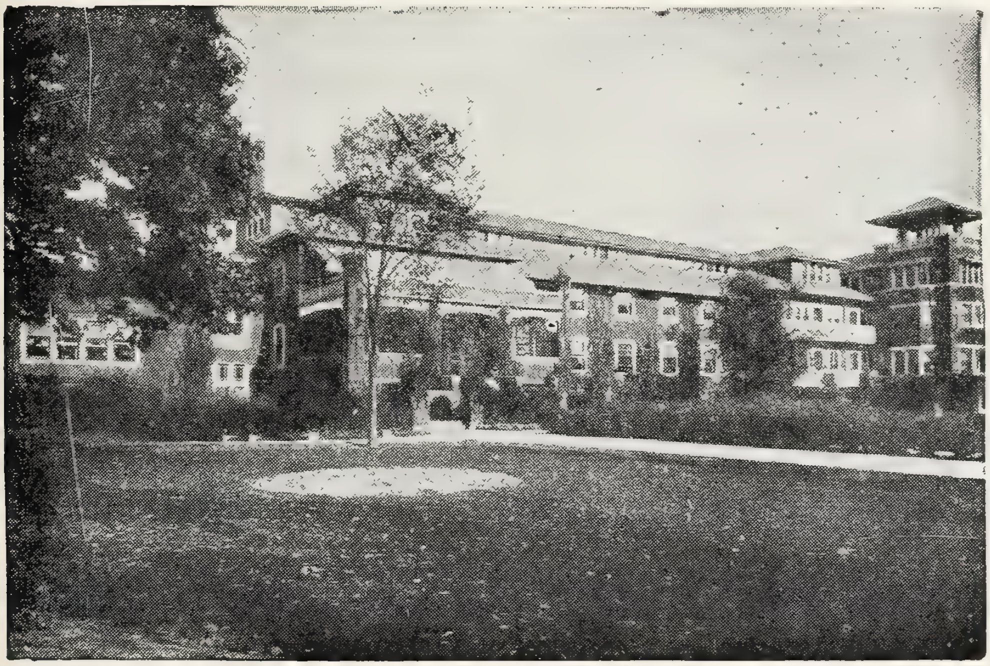

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In Memoriam

WERNER HEMSTEAD

Dr. Werner Hemstead, formerly mayor and a prominent resident of Brainerd, Minnesota, died March 12, 1952, in Rochester. He was ninety-one years of age.

Dr. Hemstead was born April 19, 1860, in Sherills Mound, Iowa. He came to Brainerd in 1882 after taking his medical degree and practicing six months in Nebraska. He served six years as assistant surgeon at the Northern Pacific Hospital which was located at Brainerd at that time.

Dr. Hemstead was active in civic affairs, having served as mayor, city council member, member of the board of education, president of the Crow Wing County Agricultural Society and as county physician. He also served as representative from Crow Wing County in the State Legislature in 1891 and 1892.

On leaving Brainerd, he served as resident physician at the St. Cloud reformatory for a number of years and later as resident physician at the Fergus Falls state mental hospital. In recent years, he resided with his son in Minneapolis.

ROBERT HODAPP

Dr. Robert Hodapp, a practicing physician at Willmar for more than thirty years, died March 17, 1952, at the age of sixty from a heart attack.

He was a past commander of the Willmar American Legion post and had served as president of the Chamber of Commerce. He was also president of the Willmar school board, of which he had been a member since 1941.

HAROLD JOSEPH PRENDERGAST

Dr. Harold Joseph Prendergast, a member of a pioneer Saint Paul family, died quietly at his home at Turtle Lake, near Saint Paul, February 22, 1952.

Dr. Prendergast was born July 17, 1897, in Saint Paul, the son of James J. Prendergast and Anna Katherine Mitsch Prendergast. He received his primary education in Saint Paul schools. He graduated from St. Thomas Military Academy in 1915. He entered the University of Minnesota as a pre-medical student in 1915 and received the degree of Bachelor of Science in 1920. His course was interrupted temporarily in 1918 while he served in the United States Army in World War I. He received the degree of Bachelor of Medicine in 1922 and was licensed to practice in the State of Minnesota at that time. He served an eighteen-month internship at Ancker Hospital in Saint Paul, completing it in 1923, at which time he received the degree of Doctor of Medicine from the University of Minnesota.

He married Catherine Belle Leahy, March 1, 1924, and was the father of two children: a son, Harold James, and a daughter, Mary, now Mrs. Louis Pabst.

Dr. Prendergast practiced in Brainerd, Minnesota, from 1923 to 1925, at which time he returned to Saint Paul where he practiced medicine and surgery until he retired, May 31, 1950. He was Chief Civil Service Medical

Examiner for the City of Saint Paul, and a member of the Staffs of St. Joseph, Ancker and Children's Hospitals. He was a member of the Ramsey County Medical Society, Minnesota State Medical Association, American Medical Association, Medical Club of Saint Paul, Catholic Order of Foresters, and American Legion Post No. 8.

Dr. Prendergast was an exemplary Catholic, and was beloved by his patients, associates and a host of friends. He never spared himself in attending to his professional duties. His great devotion to young people was one of his outstanding characteristics which made his home a rendezvous for his children's friends. His passing will be mourned sincerely by his family, friends and medical contemporaries.

John M. Culligan, M.D.

WILLIAM L. PALMER

Dr. William L. Palmer, a former resident of Albert Lea, Minnesota, died March 8, 1952, at the Naeve hospital in Albert Lea.

He was born in Freeborn County, September 22, 1867, and spent his early boyhood at Glenville. He obtained his M.D. degree at Rush Medical College in 1896 and practiced at Glenville for ten years before moving to Albert Lea.

Dr. Palmer was married June 17, 1895, to Ida May Trow. With his son, Dr. C. Foster Palmer, and others, he established a surgical and medical clinic in Albert Lea in 1940. He was a member of the Freeborn County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Palmer was an example of what determination and ability can accomplish. At the age of five he lost his father, when fifteen he lost an older brother, and from then on became the chief support of his mother. He taught school and engaged in the milling business in Wisconsin in order to provide funds for the study of medicine. He attained his ambition to render medical service to his fellow men.

NORMAN MARSHALL SMITH

Dr. Norman M. Smith of Minneapolis died February 22, 1952, at the age of seventy-six.

Dr. Smith was born in Monticello, Iowa, September 22, 1875. He received his M.D. degree at Hahnemann Medical College, Chicago, in 1902. He took postgraduate work at the Lying-In Hospital, New York, in 1926.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, the Minnesota Pathological Society, the National Gastro Enterological Association, the Mississippi Valley Medical Association and the McDonough Society for Medical Research.

Dr. Smith had been medical director for the Minneapolis Aquatennial. He was a member of Plymouth Congregational Church and of the Masonic Lodge and the Minnekahda Club.

He is survived by his wife; a daughter, Mrs. Eleanor Meagher, Minneapolis; a brother, and two sisters.

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◆ Of General Interest ◆

Dr. E. M. Hammes, Sr., of Saint Paul, chairman of the Medical Testimony Committee of the Minnesota State Medical Association, gave an address in St. Louis, Missouri, on March 29, on the subjects "The Medical Expert Witness" and "The Minnesota Plan for the Control of Medical Testimony." The address was given upon invitation of the Missouri Society of Pathologists in co-operation with the Missouri State Medical Association and the legal profession.

* * *

Dr. Thomas J. Kenyon, formerly associated with Dr. John Lepak, has opened a new office for the practice of internal medicine at 223 Lowry Medical Arts Building, Saint Paul.

* * *

Nine phases of the treatment of cerebral palsy were discussed at the third symposium conducted by the Research Council of **United Cerebral Palsy** on March 28 at Cleveland. General theme of the symposium was "Appraisal of Current Methods of Treatment of Cerebral Palsy."

Among the physicians who appeared on the program of the symposium was **Dr. John F. Pohl,** Minneapolis, who spoke on "Function of Ancillary Services in the Treatment of Cerebral Palsy." Dr. Pohl is the author of *Cerebral Palsy*, a textbook on the diagnosis and treatment of the condition.

* * *

Dr. F. L. Bregel resumed his medical practice at St. James late in February after having served as a staff physician at the St. Peter State Hospital for the preceding six months.

* * *

Dr. William H. Card, Minneapolis, has moved into new quarters at 1641 Medical Arts Building. His practice is limited to urology.

* * *

Among Minnesota physicians attending the annual clinical conference of the Chicago Medical Society during the first week of March was **Dr. Walter E. Hinz** of Willmar.

* * *

Dr. O. L. N. Nelson, Minneapolis, spoke on the "Menace of the Medicine Chest" at a meeting of the Commonwealth Club in Minneapolis on March 7.

* * *

On March 2, **Dr. B. T. Bottolfson,** Moorhead, celebrated the thirty-fifth anniversary of his start in the practice of medicine. A native of Moorhead, Dr. Bottolfson became a graduate of the University of Minnesota Medical School in 1916. After interning at Minneapolis General Hospital, he began practice at Kindred, North Dakota, on March 2, 1917. He returned to Moorhead following a period of service in the Army during World War I and has since practiced there. He specializes in ophthalmology and otolaryngology.

* * *

Dr. L. M. Evans and **Dr. R. J. Cesnik** have moved into new offices at Sauk Rapids. Their new location provides considerably more office space than their former quarters.

* * *

After attending a graduate medical assembly in New Orleans early in March, **Dr. and Mrs. Hobert J. Setzer,** Saint Paul, were among a group who flew to Mexico for a tour of the country and its medical clinics. They returned by plane to the United States on March 29.

* * *

Dr. C. M. Adkins. Thief River Falls, one of the oldest active practicing physicians in Minnesota, celebrated his eightieth birthday anniversary on February 23. Dr. Adkins has practiced at Thief River Falls and nearby Grygla since 1912. He still maintains regular office hours at Thief River Falls and drives to Grygla for consultations one day each week.

* * *

Three fellows in the Mayo Foundation, studying at Rochester, received master's degrees at commencement exercises at the University of Minnesota on March 20. **Dr. William J. Block, Jr.,** and **Dr. Hugh H. Hanson** received M.S. degrees in medicine, while **Dr. K. J. Monsour** received a M.S. degree in psychiatry.

* * *

During the first half of March **Dr. John Eiler,** Park Rapids, first spent a week in Chicago, taking a course in surgery at the Cook County Hospital, followed by a week at New Orleans, where he attended a postgraduate medical assembly.

* * *

Dr. C. S. Youngstrom, formerly of Vinton, Iowa, has joined the staff of the East Range Clinics, Eveleth. A graduate of the University of Nebraska, he specializes in urology.

* * *

Dr. Gordon R. Kamman, Saint Paul, spoke on "Psychotherapy in Psychosomatic Medicine" at a meeting of the Park Region Medical Society at Fergus Falls on February 29.

* * *

It was announced on March 14 that **Dr. E. W. Lippmann,** Hutchinson, had resigned as a member of the city recreation board. He told the city council that he was forced to relinquish the position because of the press of professional affairs.

* * *

Dr. Robert L. Parker, Rochester, was a speaker at the Saint Paul Medical Forum on March 5. His topic was "Cardiac Disease of Unusual Etiology."

(Continued on Page 368)

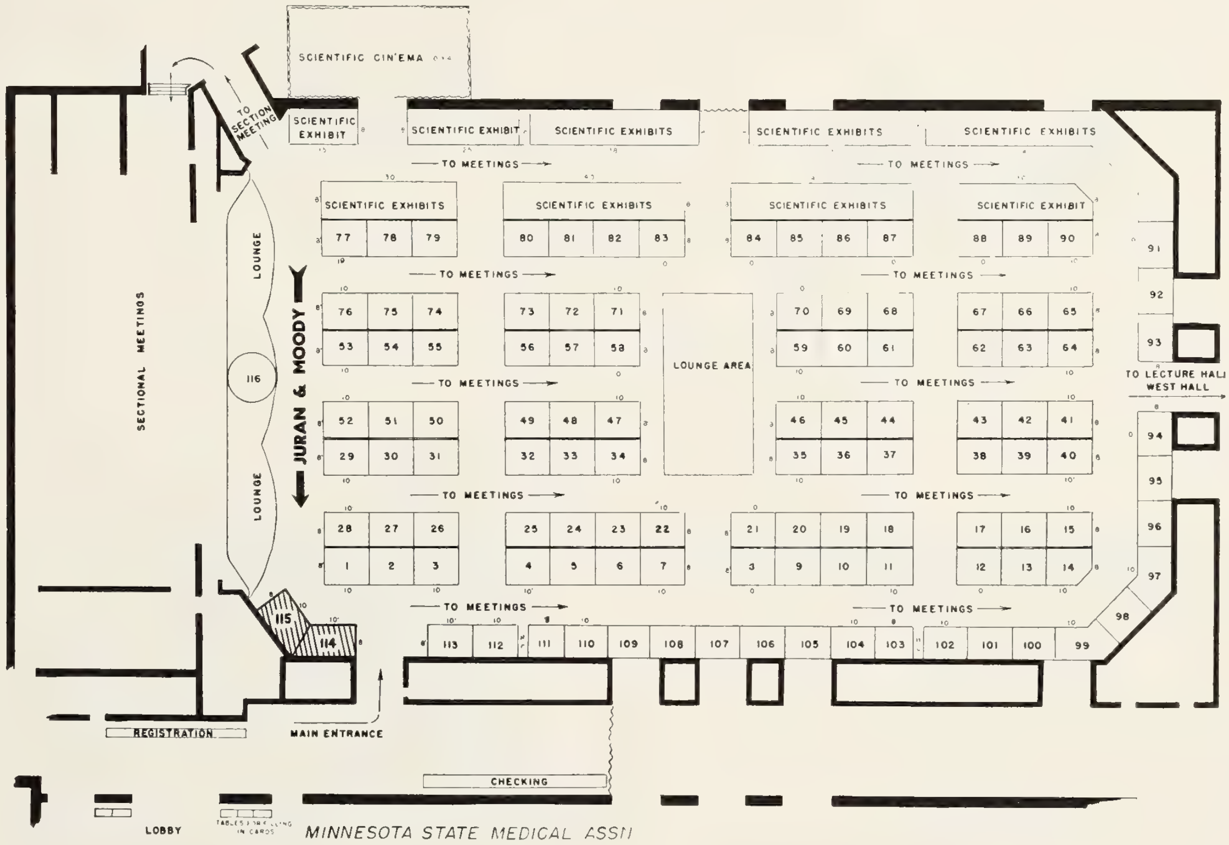
99th Annual Convention

Minnesota State Medical Association

MINNEAPOLIS, MINNESOTA

May 26, 27 and 28, 1952

DIAGRAM OF EXHIBIT HALL—MINNEAPOLIS AUDITORIUM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(Continued from Page 366)

Dr. C. A. Anderson, Hector, attended the General Practitioners National Convention at Atlantic City, New Jersey, during March. He was away from Hector for about three weeks, and during his absence all emergency cases in his practice were taken care of by Dr. H. P. Hinderaker of Bird Island.

* * *

Dr. James Troghele, formerly of Corte Madera, California, has joined the medical staff of the Hastings State Hospital.

* * *

Dr. Leonard F. Peltier, University of Minnesota Medical School, is one of twenty-one young scientists recently named as the fifth group of Scholars in Medical Science by the John and Mary R. Markle Foundation. With the appointment goes a grant of $30,000 for support of each scholar and his research —$6,000 annually for five years, paid directly to his medical school. Dr. Peltier is a clinical instructor and senior resident at the University of Minnesota Medical School, and his special fields of interest are orthopedic surgery and surgical pathology.

* * *

Dr. James T. Priestley, Rochester, was elected president of the Central Surgical Association at the ninth annual assembly of the association at Toronto, Canada, on March 8. He had served as secretary of the organization for the past three years.

* * *

Dr. L. H. Flancher, superintendent of Sunnyrest Sanatorium, Crookston, was the principal speaker at a meeting of the Crookston Exchange Club on March 4. He urged all residents of Crookston to participate in the Polk County chest x-ray survey, conducted during February and March.

* * *

Dr. John Stam, Worthington, attended the semiannual meeting of the Northwest Pediatrics Association at Saint Paul on March 7.

* * *

Two new physicians have joined the staff of the Bratrud Clinic at Thief River Falls. They are **Dr. Forrest A. Rowell,** formerly of Hastings-on-Hudson, New York, and **Dr. Harold D. Kletschka,** formerly of Brainerd.

Dr. Rowell, a graduate of Tufts College Medical School, after completing his internship served in the Army from 1940 to 1945. Following the war he took postgraduate work in obstetrics before beginning practice at Hastings-on-Hudson and Yonkers, New York, where he was on the obstetrical staff of Yonkers General Hospital and St. John's Hospital.

Dr. Kletschka, a graduate of the University of Minnesota Medical School, served his internship and took a year of surgical training at Kings County Hospital, New York. He then spent two years studying general and thoracic surgery at the University of Michigan Hospital, Ann Arbor.

* * *

At a meeting of the Rochester Chapter of the Izaak Walton League on March 11, **Dr. M. C. Pet-**

ersen, of the Rochester State Hospital, described the progress of the Minnesota mental health program during the past 100 years.

* * *

"Your Child and His Mental Health" was the topic discussed by a panel at a Parent-Teacher Association meeting in Winona on March 17. Among the participants in the panel was **Dr. C. W. Rogers,** Winona.

* * *

Among those appearing on the program of an Olmsted County Farm and Home Safety meeting at Rochester on March 11 was **Dr. H. Herman Young,** Rochester, who gave an illustrated talk on farm and home accidents and their prevention.

* * *

The late **Dr. M. W. Kemp,** formerly of Moose Lake, is to be honored by the Cragmont Hospital at North Madison, Indiana, where he was superintendent for four years. A new employes' building there will be named in his honor, and an oil portrait of him will be hung in the lobby. Dr. Kemp was the first superintendent of the Moose Lake State Hospital and served there from 1938 to 1946.

* * *

Dr. George R. Smith, Hutchinson, spoke on cardiovascular diseases at a meeting of the Kiwanis Club in Hutchinson on February 19.

* * *

A total of 1,507 persons enrolled in the Becker County Flood Bank during its initial membership campaign in February, it has been announced by **Dr. C. W. Moberg,** Detroit Lakes, chairman of the campaign. The blood bank is a type of insurance program that costs nothing to join. By promising to donate a pint of his blood when called, a member secures protection for himself and any member of his family in case of critical illness. It is believed that the Becker County membership is large enough so that no member will be called upon to donate blood more often than once every three years.

* * *

It was announced on March 12 that applications would again be accepted from men who wished to be examined for evidence of cancer at the University of Minnesota Cancer Detection Center. **Dr. Thomas B. Hubbard,** acting director of the center, said that the list of men applicants had been exhausted.

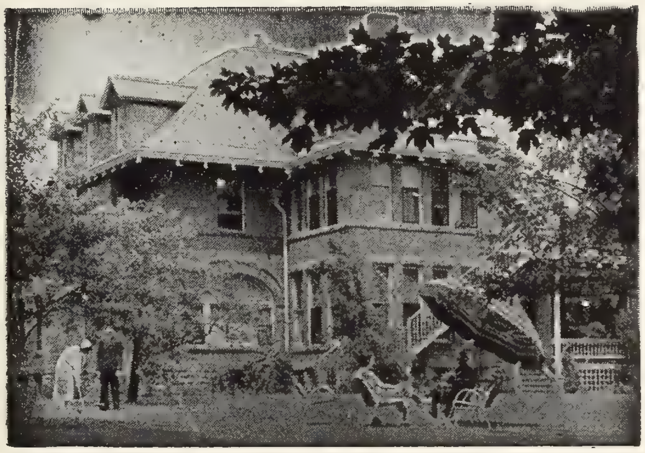
Applicants must be Minnesota residents over forty-five years of age and apparently in good health with no obvious symptoms of cancer. Applicants must write to the center for appointments; none will be made by telephone. An examination fee of $25 is charged those who can afford to pay.

* * *

Among the speakers at a meeting of the Parent-Teacher Association at Lincoln School in Austin on March 11 was **Dr. Paul C. Leck,** Austin, who discussed the month's PTA theme: "We Will Help You To Grow in Health."

* * *

Dr. William Chalgren, Mankato, was the principal speaker at a meeting of the YWCA Young Mothers Club in Mankato on March 13. He spoke on the topic, "In Defense of Mothers."



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A mental health workshop for nurses was conducted at St. Gabriel's Hospital, Little Falls, on March 20 and 21. Among the faculty members for the course, who presented discussions of various problems in mental health, was **Dr. Alexander Watson,** Little Falls, health officer of District 8, Minnesota Department of Health.

* * *

As an inducement to persuade additional physicians to move to Mabel, a local druggist has announced plans for the construction of a clinic building there. It is expected that construction work on the one-story structure, with facilities for two physicians, will start this spring. The clinic will be equipped through donations from local groups, with ownership of the equipment retained by the Mabel Hospital Association.

Physicians interested in moving to Mabel would be able to rent the building's office space and have use of the equipment. At the present, Mabel has only one physician, **Dr. Justin Lannin,** who has practiced there for thirty-eight years.

* * *

A Mayo Memorial, in honor of the famous surgeons and their father, is being constructed at Rochester near the Mayo Civic Auditorium. The outdoor memorial, which will include statues of **Dr. Charles H. Mayo, Dr. William J. Mayo** and **Dr. W. W. Mayo,** is intended to serve as a perpetual shrine to the memory of the three great physicians. Plans call for dedication of the memorial on September 27.

* * *

"Emotions of Children" was the title of a talk given by **Dr. David A. Sher,** Virginia, at a Parent-Teacher Association meeting at Eveleth on February 21.

* * *

Dr. and Mrs. C. L. Sheedy, Austin, sailed from New York on March 14 for a tour of Europe. Plans call for their return to the United States early in May.

* * *

Dr. Ali Gharib, of Iran, a Mayo Foundation fellow in anesthesiology, was the principal speaker at a meeting at the Recent Grads Division of the America Association of University Women in Rochester on March 3. He described the living conditions and customs of Iran. Dr. Gharib expects to return to Iran after he completes his three-year fellowship with the Mayo Foundation.

HOSPITAL NEWS

The new **Winnebago Hospital** is expected to open its doors sometime during April, it was announced late in February. All of the nine patient-rooms in the eighteen-bed hospital have been completely furnished as memorials or gifts from families or organizations.

* * *

Abbott Hospital, Minneapolis, observed its fiftieth anniversary on March 5. Open house was held at the hospital on the afternoon of that day.

When the hospital was founded in 1902 by Dr. Amos W. Abbott, it was housed in a three-story apartment building and had facilities for fifteen patients. Today Abbott Hospital has 152 beds and 24 bassinets.

Dr. Abbott, who first began practice in Minneapolis in 1877, died in 1927 after having contributed much to advance medical facilities in the city.

* * *

Financial operating problems of the **Winona General Hospital** were discussed at a meeting of the Winona Exchange Club on March 11. Principal speaker at the meeting was Mrs. Sara Goyanes, member of the hospital's Service and Information Committee. Also participating was Dr. Paul Heise, pathologist and chief of the medical staff of the hospital.

Among points emphasized in the discussion were (1) the average daily house count at the hospital has dropped from 81 in 1946 to 55 in 1951; (2) the average length of stay per patient has dropped from 12 days in 1946 to 7.3 days in 1951; (3) costs have risen sharply. It was pointed out that "if everybody in the hospital last year had stayed there one more day, the hospital would have been in the black." As it is, it was stated, the hospital is losing $2.30 for every adult patient day.

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SURGERY—Intensive Course in Surgical Technic, two weeks, starting April 14, April 28, May 12.
Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting June 2, September 8.
Surgical Anatomy and Clinical Surgery, two weeks, starting June 16, September 22.
Surgery of Colon and Rectum, one week, starting April 7, May 12.
Personal Course in General Surgery, two weeks, starting April 14.
Gallbladder Surgery, ten hours, starting April 21.
Basic Principles in General Surgery, two weeks, starting September 8.
General Surgery, one week, starting May 12.
Breast and Thyroid Surgery, one week, starting June 23.
Esophageal Surgery, one week, starting June 23.
Thoracic Surgery, one week, starting June 2.
Fractures and Traumatic Surgery, two weeks, starting June 16.
GYNECOLOGY—Intensive Course, two weeks, starting April 21, June 16.
Vaginal Approach to Pelvic Surgery, one week, starting May 5, June 9.
OBSTETRICS—Intensive Course, two weeks, starting April 7, June 2.
PEDIATRICS—Intensive Course, two weeks, starting April 7.
Informal Clinical Course every two weeks.
Cerebral Palsy, two weeks, starting July 7.
MEDICINE—Intensive General Course, two weeks, starting May 5.
Electrocardiography and Heart Disease, two weeks, starting July 14.
Gastroenterology, two weeks, starting May 19.
Hematology, one week, starting June 16.
Gastroscopy and Gastroenterology, one week Advanced Course, June 23.
UROLOGY—Intensive Course, two weeks, starting April 28.
Ten Day Practical Course in Cystoscopy starting May 12, May 26.
DERMATOLOGY—Intensive Course, two weeks, starting May 5.

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Dedication ceremonies for the new $1,229,000 receiving building at the **Anoka State Hospital** were held on March 8. Governor C. Elmer Anderson gave the dedication speech. Conducted tours of the entire hospital were available to the public on March 8 and 9.

The new addition will house sixty patients—thirty women and thirty men—who will be new admittances. It is hoped that after diagnosis and intensive treatment, facilities for which are contained in the new building, most of the patients will require hospitalization for only a brief time before being returned to their own communities as useful citizens.

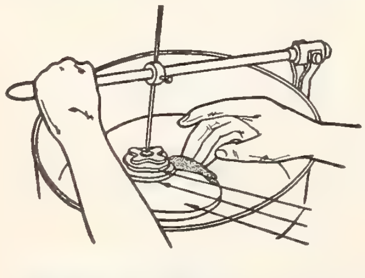
* * *

Open house was held at the new **Community Hospital** at Gaylord on March 15 and 16. Guided tours for visitors were conducted on both days.

The one-story, $225,000 structure contains twenty-two beds and a nursery. It is designed so that an additional wing can be added if necessary in the future.

* * *

Dr. F. W. Behmler, of Morris, is the new president of the State Board of Health, succeeding Dr. Ruth E. Boynton of Minneapolis. Dr. T. H. Sweetser, Minneapolis, is vice president of the Board. Dr. Behmler is a practicing physician who has always had a keen interest in public health. He has served as health officer in every town where he has practiced—Lafayette, Appleton, and Morris. He was appointed to the State Board of Health in 1940 and has been a member ever since. He was president of Minnesota Public Health Conference in 1950.



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MINNESOTA BLUE CROSS-BLUE SHIELD PLANS

At a meeting of representatives of most of the Blue Shield plans in the United States, held in Chicago on February 28 and 29, methods of improving both public and physician relationship was the sole subject of discussion. Not only was it emphasized that the co-operation and support of the medical profession are vitally necessary for the continuing success of both Blue Cross and Blue Shield, but the value of physicians in selling both plans to subscribers and the public in general was stressed.

While the principles and purposes of both of these prepayment, non-profit plans are clearly understood by members of the medical profession, the public often reveals evidence of such fallacious thinking as expecting manifold returns on a relatively small investment. This attitude has been apparent over widespread areas as revealed in both correspondence and telephone inquiries. When time can be spent either by direct contact or by letter, clearly outlining the limitations of the Blue Shield contract, it is usually evident that the subscriber is satisfied.

Perhaps the most disturbing factor to the contract holder is the idea that he has a just medical claim, which fails to meet the contract requirements and is therefore ruled ineligible. The first reaction—either of anger or dissatisfaction—can usually be dispelled by painstaking explanation of the relevant sections of the contract and also explanation of the self-evident fact that an all-inclusive medical care contract would of necessity be so expensive as to defeat its own purpose. It becomes clear then that much of the public's criticism of Blue Shield stems not from the failure of the Blue Shield office to administer the contract properly, but rather from improper or inadequate understanding of the subscriber's investment, his Blue Shield contract. It is here that a few well chosen remarks by the doctor would help materially.

During February, 1952, Minnesota Blue Shield processed claims totalling slightly more than $310,000, the highest figure ever reached in Minnesota Blue Shield's four years of existence. Obviously with the increasing payment of claims, the public is likewise becoming increasingly aware of the value of its investment. This awareness becomes apparent in the increasing number

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of thank-you letters received from subscribers for whom claims have been paid.

Recently, in an increasing number of claims, delayed processing and payment has resulted from receipt from the physician of only the original Medical Service Report. This delay can be avoided if both the original and one duplicate copy of the form is forwarded to the Blue Shield claims department. The triplicate or third copy only should be retained in the doctor's office.

During the year 1951, participation in the Minnesota Blue Shield Plan increased from 411,733 participant subscribers as of December 31, 1950, to 524,257 as of December 31, 1951.

Enrollment activity during the year 1951 resulted in 76,035 net additions to the number of Blue Shield contracts. The number of participating subscribers gained through these additions totaled 204,029 persons. Non-group enrollment campaigns carried on during 1951 resulted in the acquisition of 6,423 non-group contracts representing approximately 14,500 participant subscribers.

During the year 1951, Minnesota Medical Service, Inc., assumed the liability of $3,095,212.99 for 87,771 medical-surgical claims incurred by Blue Shield subscribers. These claims represented 490 claims per thousand contract years protected, an increase over 1950 of 59 claims per year per thousand contracts protected. Medical-surgical costs incurred during 1951 represented $17.26 per contract year protected compared with $16.54 during 1950.

Blue Shield participating doctors submitted 84,032 claims, or 95.7 per cent of total claims incurred during the year 1951, compared with 95.9 per cent during 1950. The medical-surgical cost of participating doctors' claims amounted to $2,934,410.02 or 94.8 per cent of the total medical-surgical costs incurred during 1951, compared with 94.9 per cent during 1950.

The classification of Blue Shield claims incurred during 1951 by type of service rendered reveals that medical claims totaled 21,723 and represented 24.8 per cent of total claims incurred, compared with 18,218 medical claims representing 31.1 per cent of total claims incurred during 1950.

Surgical claims during 1951 totaled 46,557 and represented 53.0 per cent of total claims incurred, compared with 34,338 surgical claims representing 58.6 per cent of total claims incurred during 1950. Total cost of surgical care incurred during 1950 amounted to $1,855,492.34.

During 1951, 87,771 Blue Shield claims were incurred or a total of 112,578 medical-surgical services were rendered to Minnesota Blue Shield subscribers. Of the total services thus incurred during 1951, 20.1 per cent represented medical care, 51.8 per cent surgical care, 9.6 per cent obstetrical care, and 11.2 per cent other services such as assisting after care, endoscopy and x-ray.

Blue Cross

Minnesota Blue Cross contracts in effect as of December 31, 1951, totaled 375,734 representing approximately 1,020,354 participant subscribers.

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During the year, 166,538 participant subscribers or approximately 163 per thousand protected received hospital care. $11,312,390 or 88.8 per cent of income received from subscribers was used for hospital care.

Hospital care incurred during the year, 1951 including in-hospital bed patient and out-patient care, average 5.4 days per case.

The average length of hospital stay for single subscribers during 1951 was 7.1 days; for family participant subscribers the average was 5.2 days per case.

Maternity care totaling $2,279,907.62 representing 18.2 per cent of the total subscriber benefits protected during the year was incurred by 25,885 participant subscribers.

The upward trend in Blue Cross maternity incidence is the result of the record high in births reported in Minnesota during the year, 1951.

HENNEPIN COUNTY TUBERCULOSIS ASSOCIATION

Dr. Esmond R. Long, director of the Henry Phipps Institute, Philadelphia, delivered the seventeenth annual John W. Bell Tuberculosis Lecture, April 7, at the regular monthly meeting of the Hennepin County Medical Society at the North American Life and Casualty Building, Minneapolis. He was selected by a joint committee representing the Hennepin County Medical Society and the Hennepin County Tuberculosis Association.

Dr. Long is director of medical research for the National Tuberculosis Association and is a former president of that organization. For eight years (1942-1950) he was consultant on tuberculosis to the Surgeon General of the U. S. Army. He served with the occupation forces in Germany and organized the program to restore tuberculosis control measures in the civilian population of the U. S. Zone. He is consultant on tuberculosis to the U. S. Veterans' Administration, the U. S. Public Health Service, and the U. S. Indian Service.

His distinguished career as an international leader in tuberculosis control includes thirty-five years of teaching and research on tuberculosis, early studies of the chemical composition and growth requirements of the tubercle bacillus, certain phases of the pathogenesis of tuberculosis, direction of the national program of tuberculosis research and of the community health practice in tuberculosis at Henry Phipps Institute.

Dr. Long had a twofold subject for his lecture. As director of Phipps Institute, he discussed "The Changing Problem of Tuberculosis in a City Clinic." As research director of the National Tuberculosis Association, he gave a report (with slides) on results of use of isonicotinic acid hydrazide (INH), the new TB drug which has been recently publicized.

Choice of Dr. Long carried forward the record of distinction maintained by this lectureship since it was established in the Hennepin County Medical Society by the Tuberculosis Association in 1934. Outstanding leaders in tuberculosis work presented have included Dr. Gerald B. Webb, Dr. F. M. Pottenger, Dr. Leroy U. Gardner, Dr. David T. Smith, Dr. Herman E. Hilleboe, Dr. William H. Feldman, Dr. Haven Emerson and Dr. Joseph D. Aronson.

Members of the joint committee for the recent lecture were Dr. Russell H. Frost, Dr. H. E. Drill, Dr. Howard L. Horns and Dr. Asher A. White, representing the Hennepin County Tuberculosis Association, and Dr. Thomas Lowry, Dr. W. R. Jones, Dr. C. E. Merkert and Dr. C. R. Wall, the medical society.

Dr. W. R. Jones, president of the Hennepin County Medical Society, presided. Dr. Asher A. White, president of the Hennepin County Tuberculosis Association, introduced Dr. Long.

Dinner was served as usual at 5:45 p.m. Dr. Long spoke at 7:30 p.m.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

LIVING IN BALANCE. Frank S. Caprio, M.D. 246 pages. Price $3.75, cloth. Washington, D. C.: The Arundel Press, 1951.

HISTOPATHOLOGICAL TECHNIC. Including a Discussion of Botanical Microtechnic. Second Edition. Aram A. Krajiian, Sc.D., formerly in Department of Pathology, Los Angeles County General Hospital, Los Angeles, and R. B. H. Gradwhol, M.D., Pathologist to Christian Hospital; Director Gradwohl School of Laboratory and X-Ray Technique, St. Louis, Missouri. 362 pages. Illus. Price $6.75, cloth. St. Louis: C. V. Mosby Co., 1952.

HIPPOCRATES ON INTERCOURSE AND PREGNANCY. An English Translation of "On Semen and on the Development of the Child" by Tage U. H. Ellinger, Sc.D., M.A., with an Introduction by Alan F. Guttmacher, M.D. 128 pages. Price $2.50, cloth. New York: Henry Schuman, Inc., 1952.

FUNDAMENTALS OF PSYCHIATRY. Fifth Edition. Edward A. Strecker, M.D., Sc.D., LL.D., Litt. D., F.A.C.P. Professor of Psychiatry and Chairman of the Department, Undergraduate and Graduate Schools of Medicine, University of Pennsylvania; Phychiatrist to the Pennsylvania, Philadelphia and Germantown Hospitals; Consultant to the Surgeons General, U. S. Army and U. S. Navy, and formerly Consultant for the Secretary of War to the U.S.A.A.F.; Senior Consultant in Psychiatry, Veterans Administration; Consultant in Mental Hygiene, USPHS; Chairman, Committee on Psychiatry, National Research Council; Chairman, Committee on Psychiatry, American National Red Cross. 250 pages. Illus. Price $4.50, cloth. Philadelphia: J. B. Lippincott Co., 1952.

PLASTIC SURGERY OF THE NOSE. By James Barrett Brown, M.D., Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Mo.; Chief Consultant in Plastic Surgery, U. S. Veterans Administration, Wash., D. C.; formerly Senior Consultant in Plastic Surgery, U. S. Army and in E. T. O., and Chief of Plastic Surgery, Valley Forge General Hospital, and Frank McDowell, M.D., Assistant Professor of Clinical Surgery, Washington University School of Medicine, St. Louis, Mo. Price $15.00. 427 Pages. Illus. St. Louis, C. V. Mosby Co., 1951.

This book is unquestionably the finest publication yet to appear dealing with plastic and reconstructive surgery of the nose. The authors' eminence and vast experience in the field of plastic surgery is well known to all surgeons and is attested to by the excellence of the presentation of the material in this book. Not only is the work profusely illustrated with preoperative and postoperative photographs, but it contains many fine drawings by Miss Gertrude Hance depicting the surgical anatomy of the nose and the various maneuvers employed in the different operations. These plates are well integrated with the text, making it quite simple to understand the technical principles of the operations.

The authors first discuss the psychological considerations in plastic surgery of the nose and follow this by an evaluation of the reasons for operation. They then discuss the contour of the nose, normal and abnormal, telling what structural variations are responsible for the different nose shapes and what can be expected from repair. The section on the surgical anatomy of the nose with its discussions of the angles of the profile is unusually well done. Here the drawings of Miss Hance act as a powerful supplement to the text.

Next, there is a section dealing with the planning and designing of the operation. The part played by skin, by bone and by cartilage in the reconstruction is well explained. There is detailed discussion of the construction of plaster face casts, their use in the study of the deformity and in planning the operation. The use of photographs and measurements is discussed at length.

The section on operative techniques is unusually clear and is well illustrated with drawings and preoperative and postoperative photographs. The reasons for various techniques, the consequences of faulty techniques are explained so clearly that the author makes what is difficult seem very simple.

There is no slighting of the section on postoperative care, for the importance of this part of the treatment is emphasized. Finally, the authors round out the book with sections on the treatment of fractures of the nose, secondary repairs of nasal deformities consequent to cleft lips, and major reconstructive procedures necessitated by partial or total loss of the nose from various causes.

It is not possible in a book review such as this to describe adequately all sections of this book; however, it can be said that this work is an important part of the library of any person doing nasal plastic surgery.

Frederick M. Owens, Jr., M.D.

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MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 357)

Hennepin County Medical Society. Dr. Corbett was also a member of the surgical staffs of Minneapolis General, Asbury, St. Mary's, Swedish, and Abbott Hospitals. His fraternities were Beta Theta Pi and Nu Sigma Nu. He was also a member of Sigma Psi.

Dr. Corbett's world-renowned collection of agates has been placed in the museum at Carleton College. His gun collection was given to the University of Michigan.

To within a few years of the end, Frank Corbett was a good and faithful servant to the University, the profession, and mankind. Many of us, who were his former students, shall miss him.

O. S. WYATT, M.D.

The following were elected as officers for the year 1952:

President	Dr. O. H. Wangensteen, U. of M.
Vice President	Dr. E. A. Regnier, Minneapolis
Secretary-Treasurer	Dr. Wallace P. Ritchie, re-elected

The President announced that Dr. Donald Balfour had requested that his name be placed on the Honorary Membership list, and the Executive Committee had approved this transfer. It was moved and seconded that this transfer be made. Motion was carried.

The scientific program followed.

DR. LEWIS THOMAS, University of Minnesota, by invitation, gave the paper of the evening, entitled "The Effect of Cortisone and ACTH on Infection." Lantern slides were shown.

The meeting was adjourned.

WALLACE P. RITCHIE, M.D., *Secretary*

From the standpoint of control, the most important characteristic of tuberculosis is the fact that it is communicable. In other communicable diseases like diphtheria, for example, for which we have dependable methods of immunization and effective therapeutic agents, the problem is entirely different and much more susceptible to control efforts. In tuberculosis, however, this is not the case, and the only sure way of checking its spread from one person to another is by finding and isolating the disease until it is no longer a danger to others.—ROBERT J. ANDERSON, M.D., Medical Papers of the Annual Meeting of the Canadian Tuberculosis Association, May, 1951.

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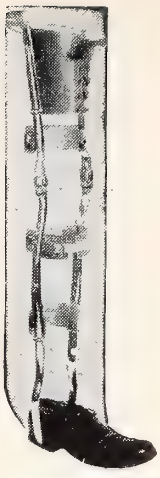

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 **May, 1952** **Number 5**

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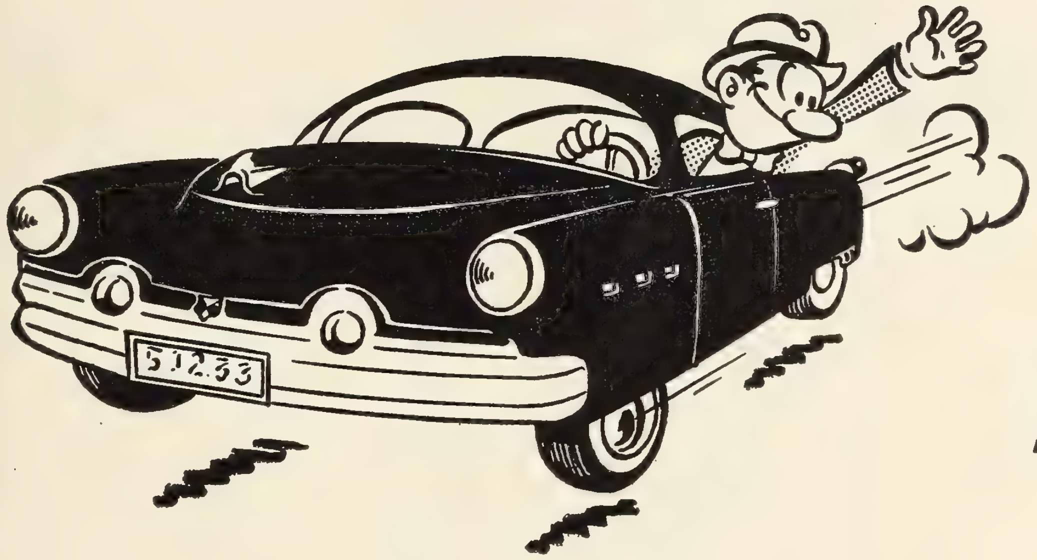

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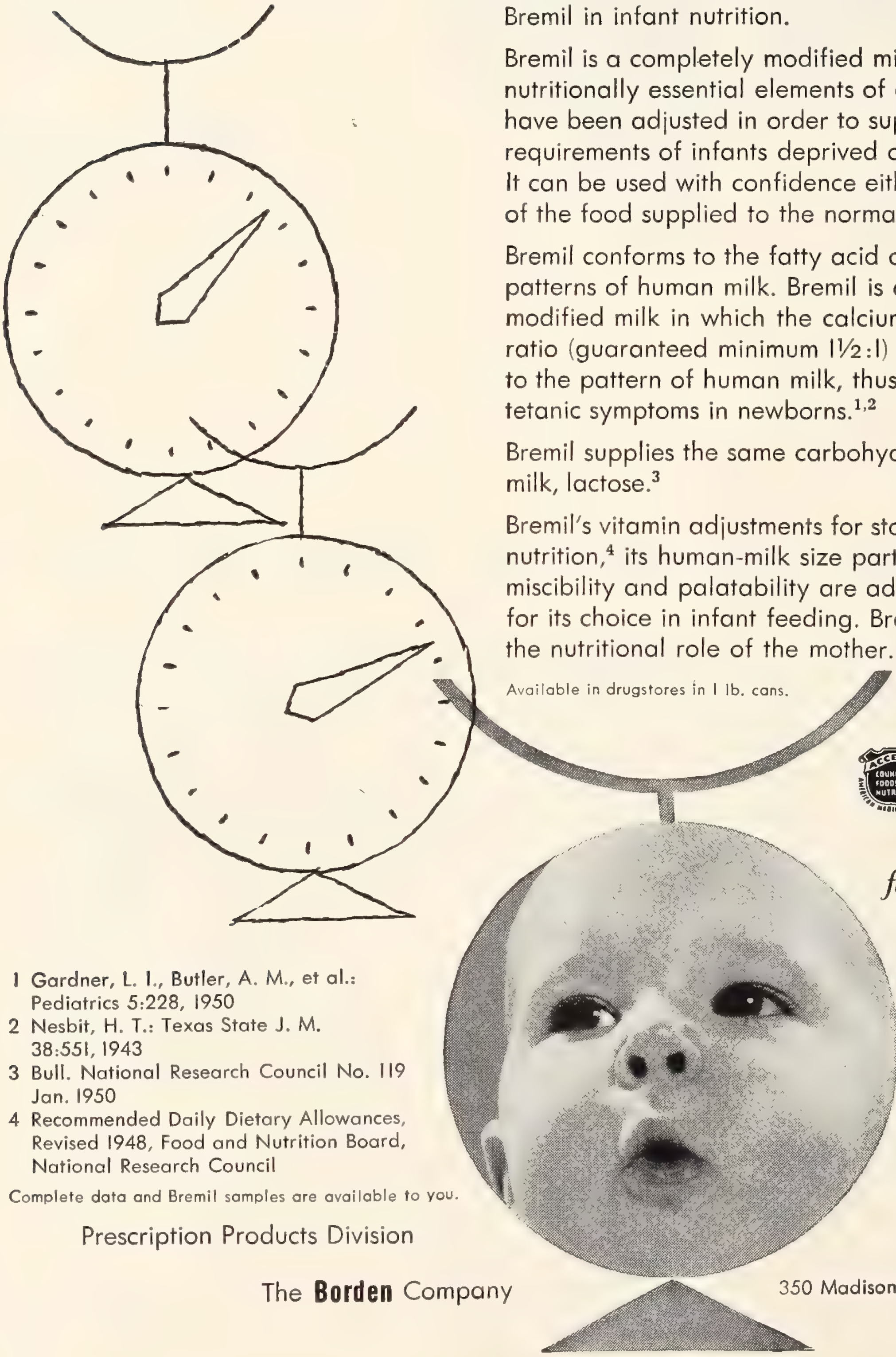

1 Gardner, L. I., Butler, A. M., et al.: Pediatrics 5:228, 1950
2 Nesbit, H. T.: Texas State J. M. 38:551, 1943
3 Bull. National Research Council No. 119 Jan. 1950
4 Recommended Daily Dietary Allowances, Revised 1948, Food and Nutrition Board, National Research Council

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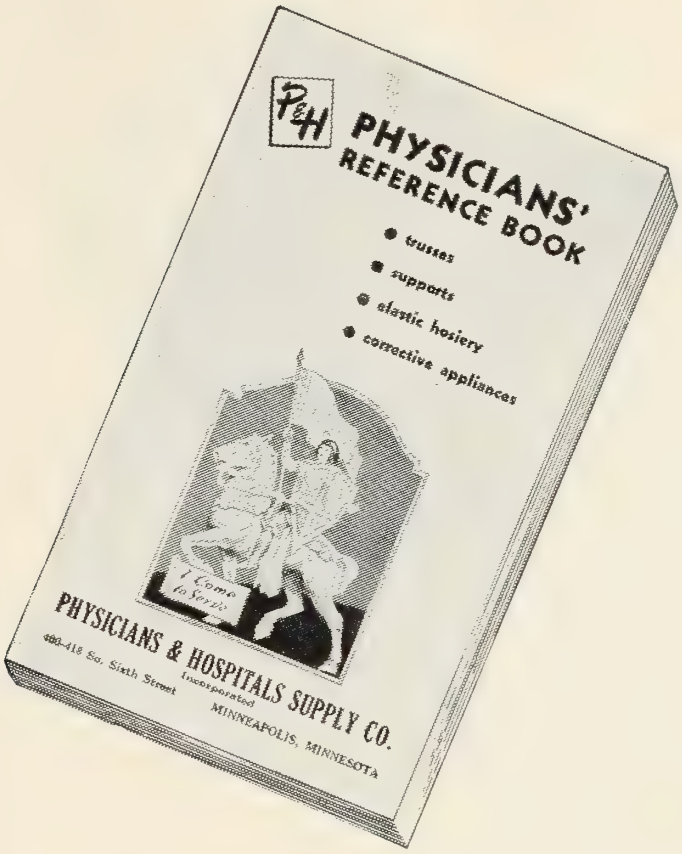
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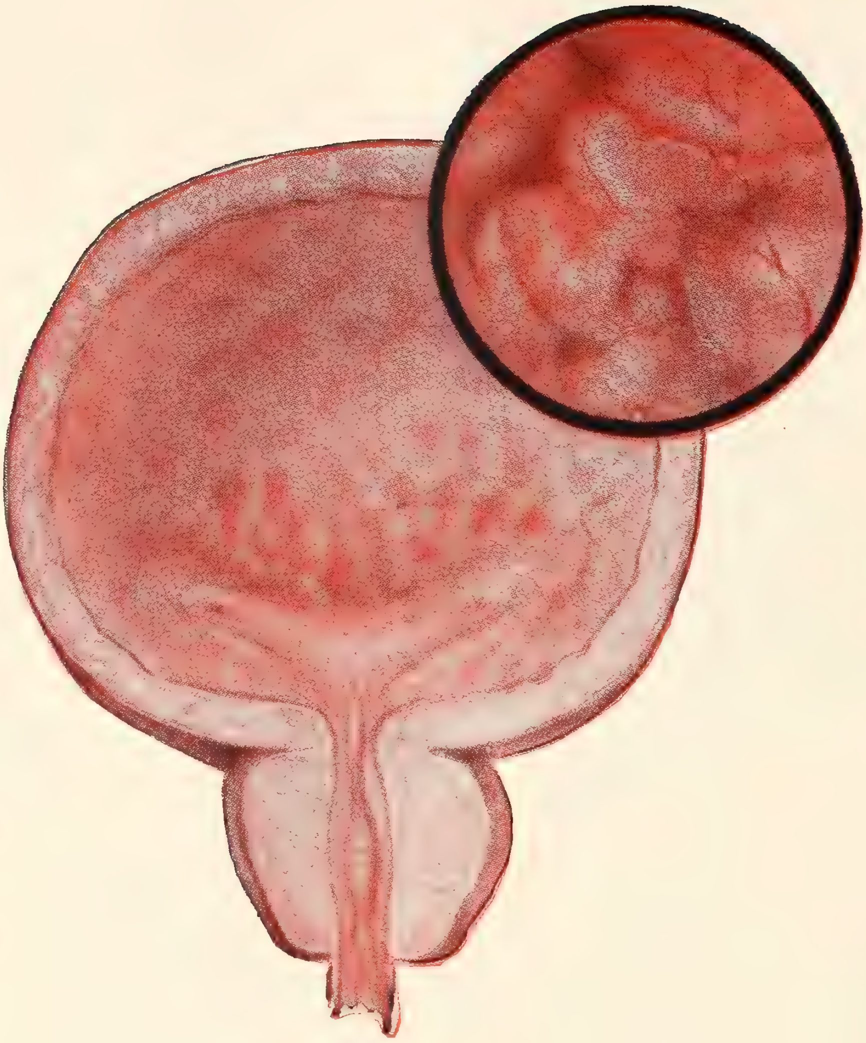

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---

1. Hildreth, E.A.; Hildreth, D.M., and Mellinkoff, S.M.: Principles of a Low Fat Diet, Circulation *4*:899 (Dec.) 1951.
2. Bloch, K.: The Intermediary Metabolism of Cholesterol, Circulation *1*:214 (Feb.) 1950.
3. Keys, A.; Mickelson, O.; Miller, E.V.O., and Chapman, L.B.: The Relation in Man Between Cholesterol Levels in the Diet and in the Blood, Science *112*:79, 1950.
4. Gubner, R., and Ungerleider, H.E.: Arteriosclerosis, a Statement of the Problem, Am. J. Med. *6*:60, 1949.
5. Hildreth, E.A.; Mellinkoff, S.M.; Blair, G.W., and Hildreth, D.M.: The Effect of Vegetable Fat Ingestion on Human Serum Cholesterol Concentration, Circulation *3*:641 (May) 1951.
6. King, C.G.: Trends in the Science of Food and Its Relation to Life and Health, Nutrition Rev. *10*:1 (Jan.) 1952.

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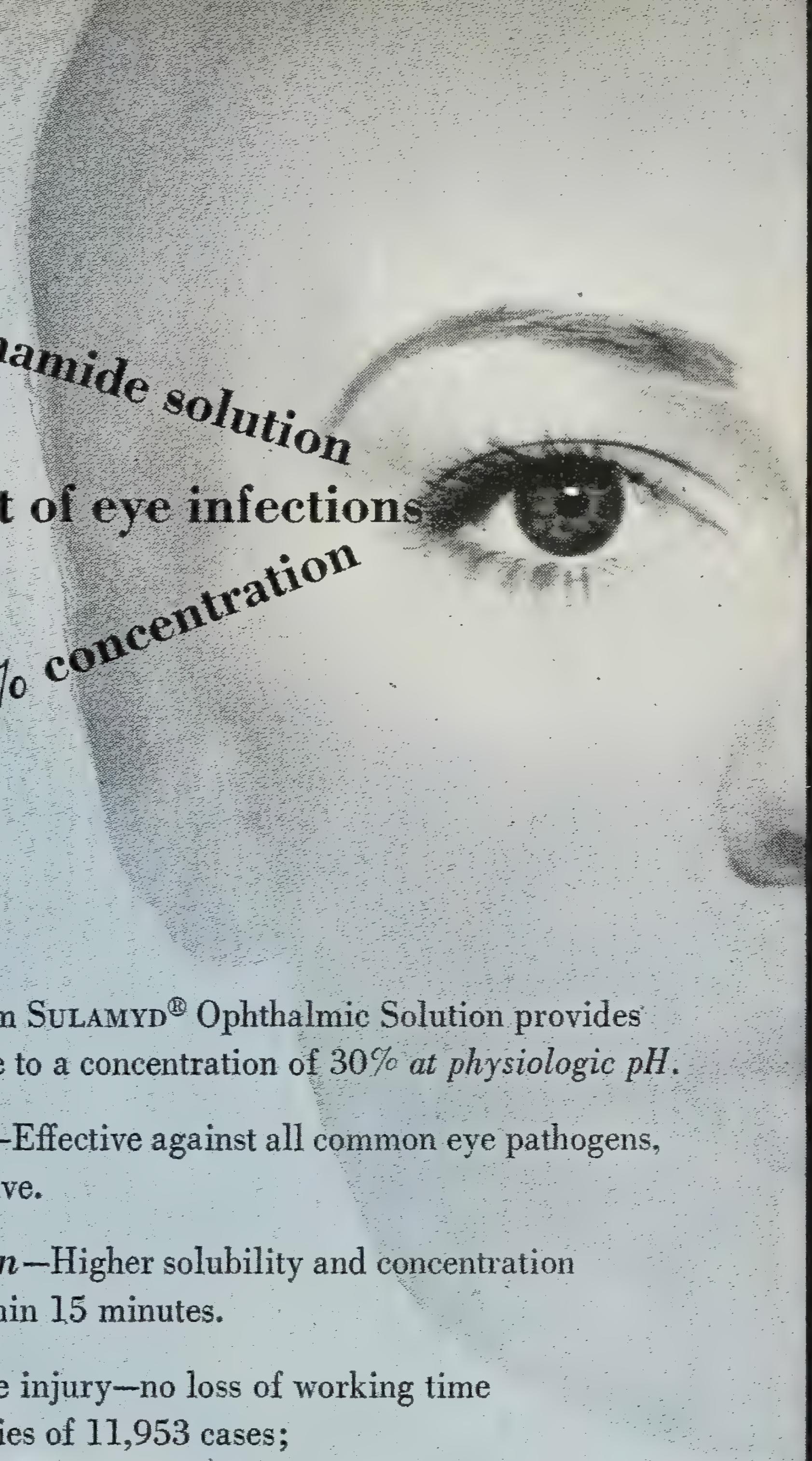

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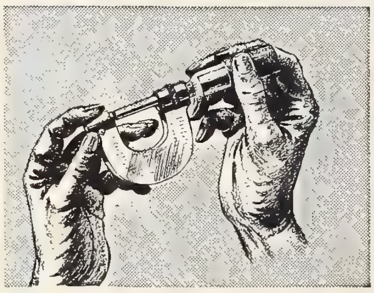

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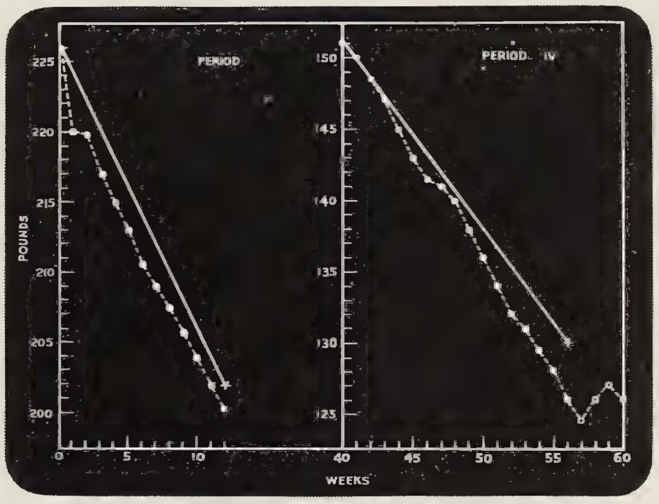

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*Matthews, J. G.: Care and Healing of Traumatic Wounds. *Northwest Med.*, 50:512, July, 1951

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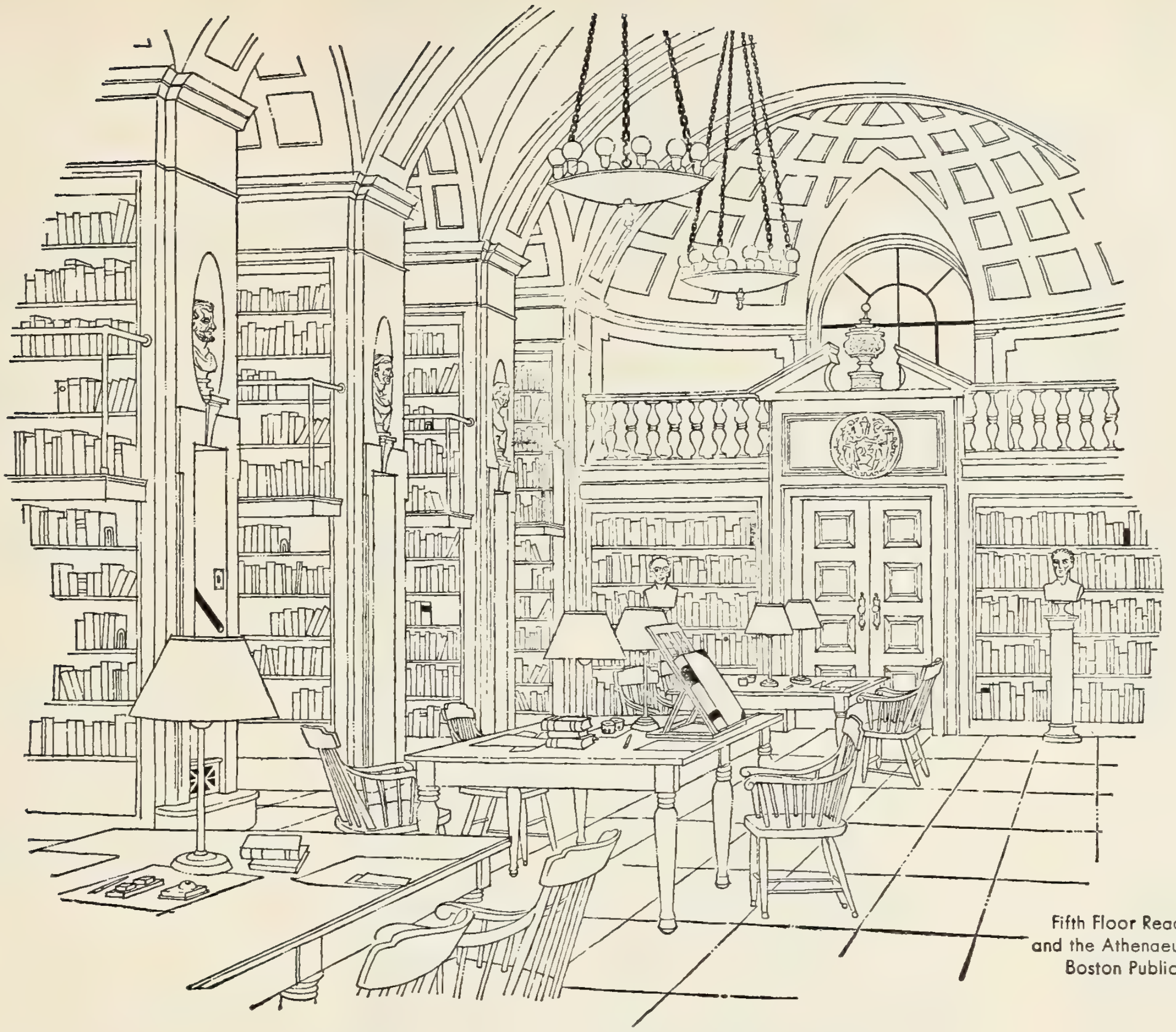

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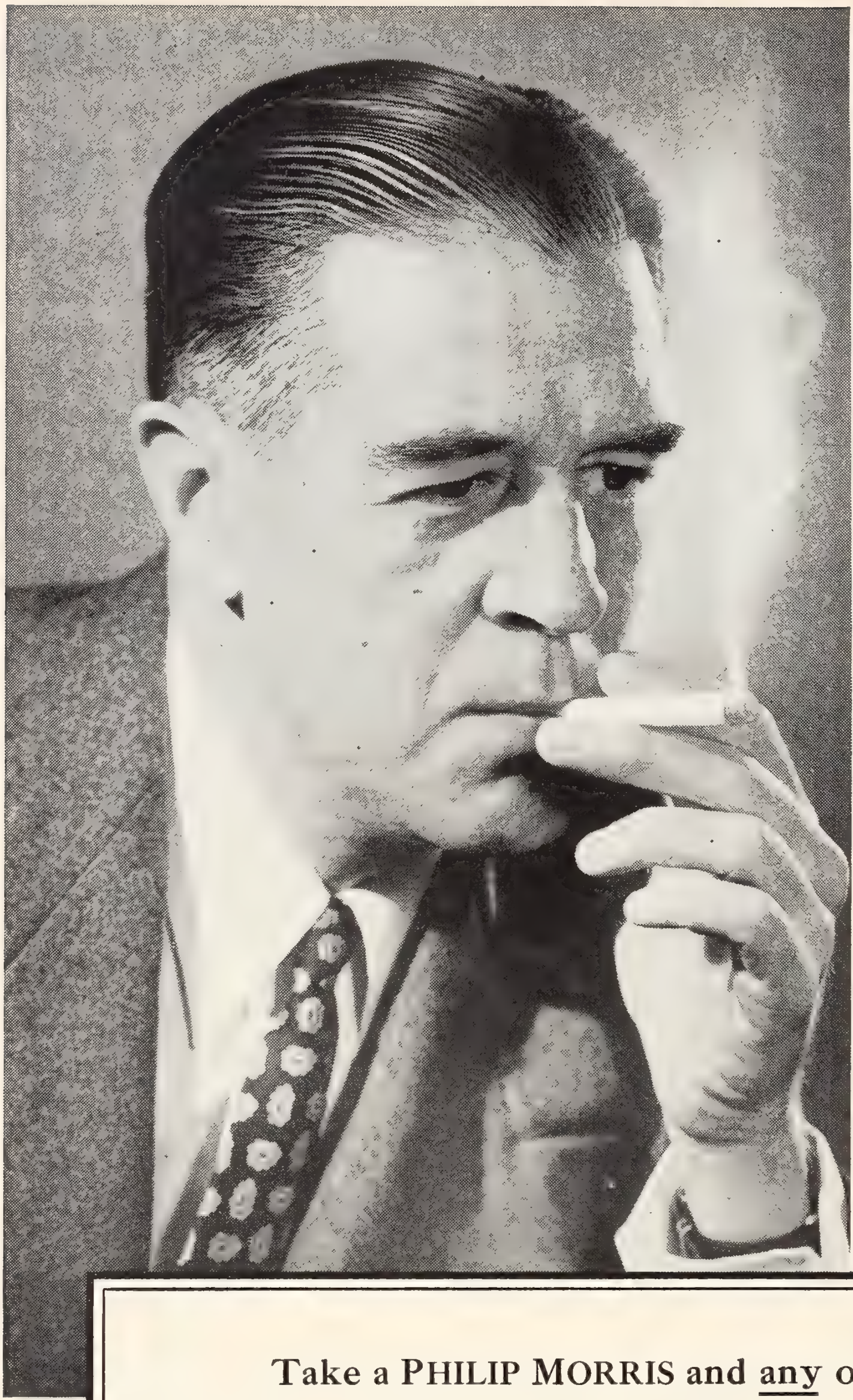

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references:

1. Journal-Lancet 70:298, 1950.
2. Rocky Mountain M. J. 48:99, 1951.
3. Am. J. M. Sc. 218:298, 1949.
4. J. M. Soc. New Jersey 48:12, 51.
5. Am. J. M. Sc. 219:139, 1950.
6. U. S. Armed Forces M. J. 1:332, 1950.
7. Circulation 1:502, 1950.
8. Cincinnati M. J. 31:137, 1950.
9. Southern M. J. 44:44, 1951.
10. M. Times 79:83, 1951.
11. J. A. M. A. 146:250, 1951.
12. Circulation 1:508, 1950.

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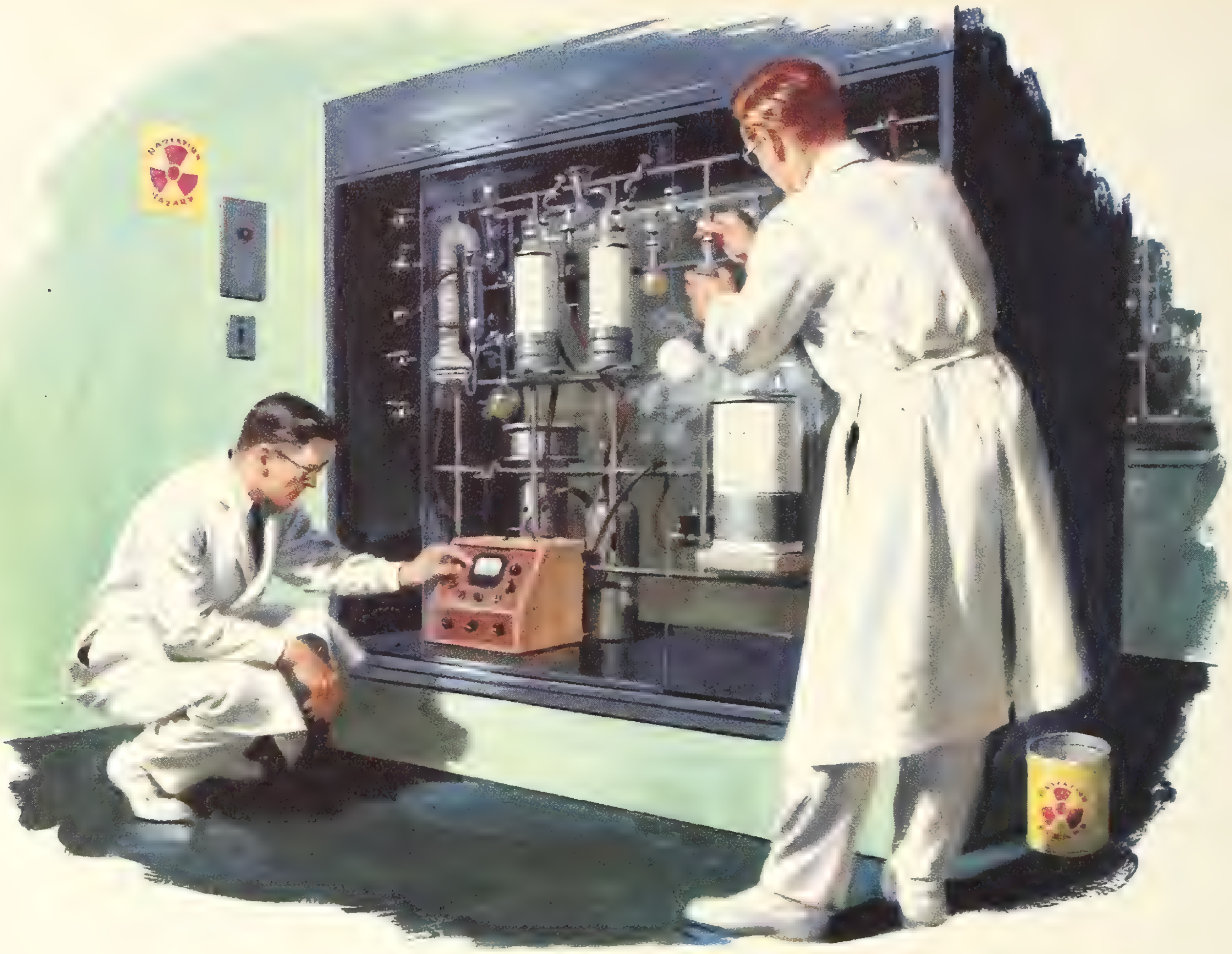

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 **May, 1952** **Number 5**

PSYCHIATRIC IMPLICATIONS OF THE ATOMIC AGE

WILLIAM HOWARD HENGSTLER, M.D.

Saint Paul, Minnesota

WE LIVE in strenuous times. The world faces its greatest crisis. Speed, which has been viciously catapulting all mankind for the past three or four decades, has finally brought us to the point where man has devised an instrument which, if used, can destroy both himself and civilization. Since 1914 there has been war, peace, a severe depression, another war, a semblance of peace, and finally a war which is said not to be a war. Millions of bewildered humans have followed the kaleidoscopic chain of events, unable to understand the why and wherefore of it all. They have been led down one road and up another, through conflict and peace, and back again, until they can no longer maintain emotional poise or emotional stability. They have seen ideologies come and go, and governments rise and fall. They have seen freedoms revoked or restricted, their money devalued, and in some places their wealth confiscated, their property taken away, and their friends and relatives liquidated. Through it all the cry of the instigators has been for power and more power, speed and more speed, armanent and more armanent, money and more money.

And we call this the Atomic Age!

To all of this, repercussions of one kind or another have been inevitable. America has never before been confronted with problems like those of today. To be sure, this nation has passed through severe crises, like those of 1776 and 1865. But those were pertinent, for the most part, to America alone and bore no special relationship to the world at large. Today we find ourselves in the middle of an international and world-wide muddle such as never before existed.

This presentation has no political tinge and is not a criticism of anyone. It is an unbiased analysis of conditions that exist today, by one who has been interested in human relationships for a third of a century. In America we are having powerful social repercussions to the Atomic Age. These concern our entire population.

The greatest effects of this social repercussion are upon our young people. Because of the necessity of the draft, and of almost universal military service, our young men can no longer make definite or specific plans for their own lives. Education may be interrupted or postponed, careers may be changed or eliminated, and marriage with a home and family and a normal settled life may be made more difficult or impossible. In addition, there is the threat of death or disability on the field of battle. The young women of our country are affected directly by the predicament of the young men. They must wait to marry, or marry and wait for their men to return to them. In wartime, and to some extent today, there has been much doubling up of families. The housing shortage, or other reasons, have made it expeditious for the wives and children of service men to live with their own or their husband's parents, with many resultant conflicts and maladjustments of one kind or another. All of these conditions induce a sense of futility and hopelessness, and a feeling of confusion and deep resentment in the minds of many of our younger generation.

Older persons, especially the parents of our service men and women, have had the added burden of anxiety over the safety and welfare

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Presidential Address delivered before the Minnesota Academy of Medicine, January 9, 1952.

of their sons and daughters, and have been dismayed by the apalling growth and magnitude of their problem. As a result of all of this, we are having a definite social upheaval in this country, characterized by a great variety of mental and emotional reactions in our population. Never before in America have people felt so generally maladjusted or so generally insecure as they feel today.

When we examine the economic repercussion to the Atomic Age in this country we find it shown most clearly by inflation and increased taxation. Devaluation of our currency, with the great loss in the purchasing power of our dollar, has severely jarred the security of most of our people. No longer is a good income of the 1940 vintage an adequate income for today. Rising living costs with failure of income to increase proportionately have required economies and budget revisions never before deemed necessary. Organized labor, because of its power, has been able to make income keep pace with living costs to some extent. But consider the plight of the white collar worker, of the man retired on a pension or a fixed income, and of the man who is trying to live on an annuity purchased twenty or thirty years ago! With no Union or organized force behind them, their lot is indeed a sad one. In addition, taxes have now moved up to an all-time high, to decrease further the buying power of the income of every person. Many older or retired persons, in order to augment an insufficient fixed income, decide that they must go back to work again. But when they go out and try to get a job they are told that they are too old and that there is no work for them. In the eyes of most employers of today, useful life now ends at forty instead of beginning there. And so economic repercussion has had its effect upon our population, and adds to the general demoralization of emotions, and to the tendency toward unrest and dissatisfaction, which exist in our land today

A third important repercussion is in the field of politics. For the past twenty years the United States has had a national government which has gradually tended to develop centralized power in the nation's Capitol. Slowly but surely this government has subtracted from free enterprise and so-called rugged individualism, until today we stand where no one two decades ago realized that we could stand. Through the mediums of gradually increasing power over the lives of all of us, and through the mechanism of progressive increase in taxation of all kinds, we as individuals are now stripped of practically all opportunity to create or amass for ourselves a fortune, or even a competency for our old age. Our conception of America, particularly those of us in the older generation, has always been a land of opportunity for all comers. A poor immigrant boy could come to this country and if he possessed the business ability to make a fortune, or to become successful, he was allowed to do so. Apparently with present economic conditions and government controls, such opportunities no longer exist. For twenty years we have been governed by a single dynasty. It is disturbing that in a democracy any one political party, no matter which one, could have the strength to stay in power for that length of time. That does not conform to the idea of true democracy. Our government has become an accepted thing and many members of our younger voting population cannot remember any other political party being in power. They have accepted the idea of a centralized government with both a taking and a giving hand reaching out toward them, and they have had a tendency to feel that the government owes them something, that they do not have to be particularly anxious about working or making their own way, because if they cannot do it the government always will or should help them, and this has become their primal concept. This is an attitude that has gradually crept into the minds of our youth during the past twenty years as a result of the benevolences of different kinds that have been handed out from our nation's Capital. The effect of all this is most apparent on the people of the older generation who had once experienced the pleasure of living in the days of more individual freedom and of more uncomplicated governmental functions. They resent the drift toward a welfare state. The younger generation have never known anything different than that which we now have and so they are not particularly annoyed by the tribulation of comparison. They have become indoctrinated with the idea that the government will or should take care of them, and so they have a fair sense of indifference as to the amount of their own effort that they should expend.

At the present time the international political situation tends to produce mixed emotions in most people. The gradual shift of this country from isolation to active participation in world affairs has brought about a great variety of controversial reactions in our population, and the financial debacle with money waste and the rise of our national debt to astronomical figures, has not tended to promote a feeling of security among the people. On top of this recently have come the sordid tales of corruption in some branches of our government which further promotes the loss of faith and a decreased feeling of confidence. From what we have been hearing the past few weeks about graft in certain branches of our government, we are led to believe that the code of "what's in it for me" runs deeper than "what can I do for my country."

Through the medium of the radio the world has become a very small place. A few decades ago, the Emperor of China, or the ruler of Russia, could speak and say what they pleased and we never knew it, or cared about it, unless it was of enough importance to appear in the press. But today, let one word drop from the lips of the Sultan of Zulu and it is flashed around the globe within the hour, to the confusion perhaps of many thinking persons. The regular appearances of our radio commentators at definite stated intervals, has also added to the general conflict in the minds of our population. Each commentator has his own ideas as to what is wrong and as to what should be done, and the contradictory broadcasts from one day to another are extremely unsettling to the emotions of the average individual. The heartbreak of Korea has given a large percentage of our people an active and anxious interest in what is going on in that country, and the rather conflicting reports which come daily from the battle front, and the constant arguments back and forth as to whether or not there will be an armistice, and the recent publication of the Communists' lists of United Nations' prisoners, are factors of no mean strength in causing restlessness, and uneasiness, and emotional tension among the people concerned. They are perplexed and unsure and they would like to have some leadership that would give them some definite idea as to just why all this is going on and as to just what they can expect as far as the future of their young men is concerned. There is almost certainly a feeling among our people that they are not being told everything and that they do not know exactly what the policies of the United States are insofar as the war in Korea is concerned.

The inevitable result of a situation of this kind in a nation is to bring about moral repercussions, and those of us who keep pace with moral conditions in America, know that today we are having a period of moral repercussions. Crime is much more prevalent. The papers are filled with accounts of holdups, murders, kidnappings, and various other types of misdeeds. It takes us back to the days of the roaring twenties when the mobs were in control of everything. Today there is not so much mob control but apparently there is another wave of moral turpitude sweeping over this nation. Young people are committing crimes of all kinds. Sex crimes are rather prevalent, and deviations from normal in the conduct of many people are observed by those in a position to see them. It is true that under the surface in this country there is apparently big-time crime, even as it was back in the 1920's, although probably of a little different type. The Kefauver Committee as publicly reported, has uncovered plenty of evidence of rings of crime, largely financial types of crime, rather than murders and kidnappings such as we experienced twenty-five years ago. Stories of graft and corruption in government are pouring out daily through our news disseminating media. Men in high places are branded as crooks and cheats. A pattern is developing, showing how widespread has been this dishonesty throughout our entire nation. To our consternation we learn that high officials in our government are said to be just common crooks. And what effect will this have upon the population? It will add to their emotional demoralization. It will add to their suspicion and unhappiness and will subtract from their faith and confidence in that government that collects their taxes.

Then there is the problem of alcohol. This is our major national social problem today. Unrest, insecurity and the resultant emotional instability, have precipitated an alarming increase in alcoholism. People are drinking to escape reality. Confronted with the problems they find insurmountable and insoluble, they escape in the temporary euphoria of alcohol. This applies to many persons in all age groups. Those of the older generation try to escape from the insecurity they feel in the economic and social spheres. Those of the younger generation seek stimulation to escape the frustrations they are experiencing as a result of the previously described restrictions that interfere with the calm and successful pursuit of their ambitions and their lives.

In addition to the problem of alcohol, there is the problem of drugs, both narotic and non-narcotic. Recent publicity has bared extensive use of narcotics, even among teenage school children. But far more prevalent is the widespread use of non-narcotic sedative medications. It is disquieting to know the large number of people who believe they must have a drug to make them rest, or to make them sleep, or to "quiet their nerves." How many of our profession know the psychological value of a capsule of common salt or sugar, prescribed for the neurotic patient, who must have something to take at bedtime, so he can sleep! Fortunately some legal restrictions have been placed upon the sale or dispensing of these drugs. But it is disturbing to know how many people think that they need something of this kind in order to live a normal and happy life. Others seek stimulating drugs, to pep them up so they can face their lives and their problems realistically. All of this proves the unsettled emotions in many persons of today which must have chemical support so as to present an artificial semblance of stability in living.

Lastly, let us consider the spiritual repercussions. There is no question that the emotional status in America today has produced spiritual reactions. The psychiatrist sees the patients who have never before been spiritually upset, people who have been of the Christian faith and who have calmly and serenely gone through life, who as a result of all the happenings in the world today, have become disturbed, and in connection with that disturbance begin to doubt their own spiritual status. Relatively soon these persons are in a highly muddled and confused emotional state centering around their relationship to God and their chances of salvation after death. I think it can be said that we are meeting in psychiatry more such cases today than we ever have met before, not only among older people, but among our young generation. We are seeing many of the younger generation who have come face to face with the problem of whether or not they wish to believe in a God and in the tenets of Christianity. This question begins to revolve around them with such speed that before long they are confused to a point where they do not know their own minds and develop various types of reactions, and eventually land in the hands of the psychiatrist. Religious leaders in this country are somewhat at a variance in regard to their opinions as to whether or not there is an actual increase of spiritual attitude among the people. Some authorities on religious matters feel that more people are turning to churches today than ever before. Other just as competent authoritities in this field say that this is not true, but that more people are feeling the need of it than ever before. Evangelism on the radio has become a very popular thing, and according to newspaper accounts, in some instances has resulted in the conversion of large numbers of people. Whether such conversion by these Evangelists represents an actual stable acceptance of religious principles and Christian faith on the part of the converted people is problematical. Many times emotionally upset people turn on the spur of the moment to a spiritual solution of their problem, which later is not acceptable to them because they have had a chance unemotionally to think it over. However, it is true I believe, that church membership rolls are not increasing at this time. This I think is admitted. So there are both types of spiritual repercussion to the present things going on in the world of today. On the one hand there are the people who feel the need of the security of Christian faith and belief in God. On the other hand is the reaction of people who have been of the Christian faith but have begun to doubt whether or not they really are Christians, and whether or not they really do stand in the desired relationship to their God.

The combined effect of all the factors that have been outlined naturally result in emotional trauma for a large portion of the people in this nation. The basic emotional reaction is in the realm of fear. Fear is our most powerful emotion and when aroused can produce more undesirable effects in an individual than any other one of the emotions. I think it can safely be said that in the world of today, both in this country and abroad, there has come to exist a state of fear never before known. This is not the fear of any specific thing; it is simply a state of fear that something is going to happen, they do not know what. We are living in the age when we are told daily of the threat of the atomic bomb. We are told how to try to prepare a defense against the atomic bomb. Then we are told that there is no de-

(Continued on Page 433)

PRESENT-DAY TREATMENT OF BURNS

MARK B. COVENTRY, M.D.
Rochester, Minnesota

THE PROBLEM of burns had its origin when prehistoric man first learned to use fire and today, in spite of tremendous advances in our medical knowledge, the burned patient still presents a challenge to the skill of the physician. Medical history reveals the use of countless local applications of supposedly healing substances, but the understanding of the basic disturbances in body metabolism which occur when the patient is burned, and the subsequent treatment of that patient, are far more important than local therapy. A milestone in the treatment of burns took place in 1925 when Davidson,[4] working at Henry Ford Hospital, began using tannic acid in an endeavor to reduce the loss of plasma, diminish cutaneous infection, and decrease pain. The chief objections to its use were the occurrence of secondary infection underneath the eschar, gangrene due to the constricting eschar, and central necrosis of the liver, which occurred rather more frequently when tanning agents were used. Other local applications such as picric acid and gentian violet were used after the discovery of tannic acid. In 1942, Allen and Koch[1] reported the use of sterile dressing with a petrolatum base, combined with pressure. This treatment has been the one of choice since that time and has only recently been challenged in favor of the open or nondressing technique.[3,8]

In general, increased knowledge of body metabolism and its changes during the burn stages and the ability to combat these changes have led to a decided decrease in mortality rates. The death rate from severe burns at Toronto Children's Hospital[5] showed a decrease from 11.8 per cent in 1938 to 2.9 per cent in 1941. This decrease followed the appreciation of plasma loss and its replacement, the use of sulfonamide drugs and the use of cortin. The latter substance has since been shown to be ineffective in preventing shock—but the appreciation of loss of fluids, changes in electrolyte balance, and chemotherapy and antibiotic therapy of infection has reduced the death rate in cases of severe burns to a surprisingly low figure.

War has greatly influenced the treatment of the burned patient. Trueta,[7] after the suggestion of Zeno,[10] applied the principles of occlusive dressings and immobilization achieved by the plaster of paris bandage in the Spanish Civil War. The British used these methods at Tobruk during World War II. The burns experienced in England proper during World War II included those of the face and hands suffered by aviators, and the British developed a rather specialized method of treating the burned hand. We in America were plunged into the problem of burns at the time of the bombing of Pearl Harbor. The use of tanning agents was just then being questioned, and following Pearl Harbor our technique changed to the application of petrolatum to the burn, over which was placed a massive pressure dressing. Two catastrophes in the continental United States, namely the Coconut Grove fire in Boston in 1942 and the Ringling Brothers Circus fire in Hartford, Connecticut, in 1945, added to our experience in and knowledge of the management of the burned patient. The new problem of atomic burn occurred toward the end of World War II.

Definition and Stages of Burns

Only by defining a burn as an injury to the body as a whole and to the skin in particular are we able to comprehend its full importance. Whether burns result from heat, cold, electricity, chemicals, sun rays, roentgen rays or atomic rays the ultimate problem is the same. We must recognize the three stages of a burn in order to treat it properly.

1. *Shock.*—The first stage of a burn, that of shock, lasts from twenty-four to forty-eight hours. It is not materially different from other forms of shock and is characterized by a fall in blood pressure, a rapid pulse, cold extremities and hemoconcentration.

2. *Toxemia.*—Toxemia persists from the end of the stage of shock for four or five days thereafter. The term "toxemia" is used for want of a better one. There may be some form of toxic element generated or liberated by the body which

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seems to be present during this stage. Recently Moyer[6] has postulated that this stage is due to water intoxication and not toxemia, and he has been able to prevent the toxemic phase in dogs with proper attention to electrolytes and fluid. During this period there is evidence of parenchymatous damage associated with oliguria, headache, vomiting, drowsiness and fever. Renal damage is most obvious and most profound. A pronounced increase in the nonprotein nitrogen content of the plasma occurs. Changes may occur in the central nervous system during this stage of toxemia, accompanied by convulsions and coma. The liver, spleen, and gastrointestinal tract are damaged.

3. *Anemia and Hypoproteinemia.*—This third stage of a burn was formerly called the "stage of sepsis," but with the use of antibiotics infection has been materially decreased. Anemia and hypoproteinemia remain, however, as definite entities. During the third stage epithelization occurs and skin is grafted when necessary.

Treatment

The treatment, then, of a burn depends on the stage of the burn. When the patient is first admitted to the emergency room of the hospital, an evaluation of the seriousness of the burn must be made. Patients with burns of small area, or of superficial degree can be treated as outpatients. Those with burns involving a surface equal to that of one upper extremity or more, however, should be hospitalized and the burns should be considered as serious. Patients having burns of more than first degree which involve the hands or feet should likewise be hospitalized. The patient should be wrapped in a sterile sheet after his clothing has been removed. Blood pressure should be taken and recorded. Morphine should be given to relieve pain, but excessive amounts should be avoided for they increase the danger of an already impending general collapse of the circulatory system. One-sixth grain of morphine administered hypodermically is usually enough. Tetanus antitoxin or a booster dose of toxoid should be administered. If shock is present the patient should be treated immediately for this condition. Treatment consists of administration of whole blood, plasma or plasma substitutes. Hemolysis occurs very early after burning, causing a reduction in the number of erythrocytes. A proportionately greater amount of plasma is lost into the burned area. The general feeling today is that more whole blood should be used than has been used in the past, and in the case of a serious burn administration of as much as 2,000 cc. often is indicated during the first twenty-four hours of treatment. Oral administration of fluids is best if tolerated, giving 3 to 4 gm. of sodium chloride and 1.5 gm. of sodium bicarbonate per liter[6] for the first three or four days. This supplies the necessary electrolytes and prevents water intoxication. If fluids cannot be taken orally Hartmann's solution administered intravenously gives satisfactory results. The intake of salt orally or intravenously should be decreased in three to four days or edema will develop.

The next problem is that of local treatment of the burned area. Débridement is generally unnecessary. It adds to the shock of the patient and is frequently contaminating. If large particles of dirt are present these can be removed, but removal of all of the burned epidermis is of no value to the patient. A decision must be made as to whether to treat the burn in an open or a closed fashion. The closed method, which consists of pressure dressings applied over petrolatum-impregnated gauze, has many advantages. Patients are generally comfortable in this type of dressing, for it acts as a splint to the extremities, preventing motion at the joints. In the past it has been thought that this method prevented the loss of plasma, but this probably is not so. Wallace,[8] Blocker and others[2,3] have recently revived the use of the open method of treatment for burns. The burns are not dressed, but the patient is laid on sterile sheets in bed, preferably covered with a canopy to prevent drafts. There may be less disturbance in electrolyte balance by this form of treatment. Because there are no dressings to change, proponents of this method claim the treatment is less painful and less expensive. Their figures also seem to indicate that the period of hospitalization is shorter and less infection occurs when the open method is used. The mortality rate is the same for either type of treatment. During mass catastrophe, each form of treatment has its beneficial points. A community might exhaust its supply of large bulky dressings necessary for pressure bandaging, but the same community also might not have enough hospital beds for its patients. It is true that in time of catastrophe many patients, especially those whose burns do not involve more than a fifth or a quarter of the bodily surface, frequently can be treated as ambulatory or semiambulatory patients. Bandaging allows the ready transportation of such patients. If hospital beds are available it would seem that the open method of treatment, when the burn is extensive enough to prevent home care and transportation, is the method of choice.

The treatment for burns in the second stage, namely that of toxemia, is one of replacement. Fluid balance should be carefully studied. There is no simple index to follow, but the patient must be treated for changes in the body chemistry and fluid balance as these changes occur. This is done best by oral administration of fluids. The concentration of chlorides tends to decrease but should be kept at 600 mg. per 100 cc. of plasma if possible. The concentration of sodium and of potassium ions also decreases and should be replaced. The carbon dioxide combining power should be checked and corrected when and if acidosis occurs. The prevention and treatment of suppression of renal function is the main problem during this stage and the intake of fluids should be adequate to meet the situation, avoiding water intoxication as Moyer[6] has indicated. Vitamins, especially ascorbic acid, should be administered during the second stage of burns. Enough water should be taken to maintain a urinary output of 1,200 cc. daily if possible, but overloading with tap water may cause water intoxication. Enough protein should be administered to keep the concentration of protein between 6 and 7 gm. per 100 cc. of blood. This is best accomplished by feeding high protein diets, which include meat, powdered skim milk, and meat soups. These also provide needful potassium ions. If necessary, a formula can be administered by gastric tube. Further protein can be given intravenously in the form of hydrolized protein, blood and plasma, but that given orally is the most readily and efficiently utilized by the body. Glucose should be administered in adequate amounts. It has been estimated that about one and a half times the basic caloric requirement should be given to the burned patient after the first week of treatment.

Treatment during the third stage, that of anemia and hypoproteinemia, includes transfusions of blood, oral intake of iron, a high protein intake by mouth, and as early skin grafting as possible.

Antibiotic Therapy

Antibiotic treatment or chemotherapy should be started from the beginning. Penicillin is probably the antibiotic of choice and 600,000 units of procaine penicillin can be administered daily. This should be used regardless of whether the open or closed method is employed. Cultures of the burned areas should be taken and if organisms are discovered which are not sensitive to penicillin, one of the other antibiotics can be used. Antibiotic therapy should be continued until the skin grafts have taken and open ulcers are no longer present.

Skin Grafting

It is easy to say that skin grafting must be done early but it is often difficult to carry this out. The cases of burns are few, however, in which skin cannot be grafted by the end of the third week.

If the closed method of treatment has been used dressings are usually done weekly and at the end of the fourteenth day it is usually possible to determine whether the burns are of second degree and will heal by themselves or of third degree and will require grafting. If they are of third degree, one must wait for the eschar to demarcate, but not necessarily separate, for it can be excised surgically. Infection can usually be controlled with antibiotics. Usually special preparation of the ulcerated areas for skin grafting is not needed, but daily baths with sterile saline may be given or saline dressings can be applied before operation if the areas are not clean.

As a rule skin grafting is done best by the split-graft technique, removing large areas of skin with a dermatome and either suturing them in place, or using them for the "postage stamp" type of graft when suturing is difficult or undesirable. The dressings are left for seven days before changing.

If the burn is of such an extent that skin grafting cannot be done because enough autografts are not available, homografts can be used. These may take well for a matter of weeks, but will then slough. The use of cortisone and corticotropin (ACTH), either or both, has not increased the possibility of "take" in homografts.[9] Pedicle grafts are reserved for areas over bony prominences or tendons, but should not be applied until these are first covered with split-skin grafts. Correction of deep scars and contractures can take place at a later date.

Cortisone and Corticotropin (ACTH)

The initial reports on the use of cortisone and corticotropin in the treatment of burns were most encouraging. My colleagues and I have used these hormones in the treatment of several severely burned patients, and we have formulated some opinions regarding their use. These opinions are more or less tentative, and it should be strongly emphasized that the use of cortisone for severely burned patients is still in an investigative stage. First of all, it seems to be of definite value in the first stage, that of shock. We have seen patients survive with as much as 80 per cent of the surface of their bodies burned, and we feel that cortisone and corticotropin were instrumental in this survival. Secondly, the stage of toxemia seems to be unaffected by cortisone or corticotropin. Use of the hormones therefore can be discontinued once the patient is out of shock. During the third stage of a burn, namely, that of anemia and hypoproteinemia, cortisone and corticotropin seem to have little or no beneficial effects, and, therefore, should not be given at this time. There may be improvement in appetite, but no other visible benefits, and there is no evidence to show that they increase the rate of epithelization.

At least three side effects may occur if cortisone is used in the treatment of burns. The clinician must be aware of these possibilities and must weigh the advantages already mentioned against these possible complications. They are as follows:

1. Adrenal suppression may occur, and it has occurred when relatively small doses have been given for only a few days. This means that the surgeon must fully protect his patient with cortisone during any operative procedure. If the patient has received cortisone during the stage of shock, he must be protected by the administration of cortisone before, during, and after any skin grafting procedure during the third stage of the burn.

2. Cortisone has an effect on peptic ulcers. In cases in which cortisone is given, the incidence of peptic ulcers and the complications of existing peptic ulcers are increased. We, however, have not observed a higher incidence of Curling's ulcer.

3. Cortisone may suppress the usual signs and symptoms of intercurrent infections. Careful observation for bacteremia or localized infection should be made, and the patient should be given appropriate antibiotics if cortisone is used.

According to some reports in the literature, cortisone will allow successful skin grafting if the patient is "sensitive" to his own skin. In at least one case at the Mayo Clinic, however, in which we felt that the patient was sensitive to his own skin, cortisone did not help. Certainly in the usual case cortisone does not increase the chance that an autogenous skin graft will take, and, as mentioned previously, it will not cause a homograft to survive.

Summary and Conclusions

In order to treat a burned patient properly the physician must realize that a burn is an injury to the body as a whole as well as to the skin. There is no index or easy plan for the treatment of all burns. He should be cognizant of the three stages that the burned patient passes through, know what takes place during these three stages, and institute adequate replacement therapy day by day. The benefits of the open and closed methods are still being argued. The use of cortisone or corticotropin seems indicated in the treatment of severely burned patients during the shock phase, but these hormones should be used only when the condition of the patient can be carefully followed in respect to metabolism and fluid balance.

References

1. Allen, H. S. and Koch, S. L.: The treatment of patients with severe burns. Surg., Gynec. & Obst., 74:914-924 (May) 1942.
2. Blocker, T. G., Jr.: Local and general treatment of acute extensive burns; the open air régime. Lancet, 1:498-501 (Mar. 3) 1951.
3. Blocker, T. G., Jr., Blocker, Virginia, Lewis, S. R. and Snyder, C. S.: Experiences with the exposure method of burn therapy. Plast. & Reconstruct. Surg., 8:87-93 (Aug.) 1951.
4. Davidson, E. C.: Tannic acid in the treatment of burns. Surg., Gynec. & Obst., 41:202-220 (Aug.) 1925.
5. Erb, I. H., Morgan, Ethel M. and Farmer, A. W.: The pathology of burns: The pathologic picture as revealed at autopsy in a series of sixty-one fatal cases treated at the hospital for sick children, Toronto, Canada. Ann. Surg., 117:234-255 (Feb.) 1943.
6. Moyer, C. A.: Recent advances in the chemical supportive therapy of thermal injury. Texas State J. Med., 45:635-639 (Sept.) 1949.
7. Trueta, J.: The Principles and Practice of War Surgery; With Reference to the Biological Method of the Treatment of War Wounds and Fractures. 441 pp. St. Louis: The C. V. Mosby Company, 1943.
8. Wallace, A. B.: Treatment of burns. Ann. Roy. Coll. Surgeons (England), 5:283-300, 1949.
9. Weisman, P. A., Wright, Anne, Quinby, W. C., Jr., and Cannon, Bradford: The failure of adrenal cortical hormones to prolong the survival of homologous skin grafts. Plast. & Reconstruct. Surg., 8:417-427 (Dec.) 1951.
10. Zeno, L.: Quoted in Trueta, J.[7]

PANCREATITIS

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OCCASIONALLY in the practice of medicine syndromes which are comparatively rare may be frequently encountered. When this transpires, one first wonders as to the accuracy of his diagnosis and his interest in the particular subject is aroused. In the past it has been my medical good fortune to see within a short space of time several patients with pancreatitis of different gradation or phase of involvement. Therefore a general analysis of all cases in the records of St. Mary's hospital in Duluth was instituted by one of us (Schnell) and a comprehensive discussion of pancreatitis has been undertaken. I am sure that the majority of cases at the hospital have been diagnosed in recent years, since the advent of the serum amylase determination; but that those cases diagnosed in earlier years were labelled such, not while the patient lived and still could have benefited from a correct diagnosis, but by autopsy studies of the astute Dr. Berdez. This is just another instance of a disease for which we have a fairly specific diagnostic laboratory aid. It is also paradoxical and incredible that this same specific serum amylase determination is so seldom used as a laboratory aid in the evaluation of obscure cases of acute intra-abdominal disease.

Before beginning a general discussion of pancreatitis, it was deemed advisable to give a very brief review of the histology and of the physiology involved. The pancreas has both an internal and external secretory function. The external is manifested by the activity of the acinar cells in producing pancreatic juice, which plays a major rôle in the digestion of proteins, fats and carbohydrates. The internal secretion, now known as insulin, is formed in the islet cells and passes into the portal blood stream where, in the liver, it plays its essential role in carbohydrate metabolism.

The pancreatic juice, as it is emptied from the ampulla of Vater into the duodenum, is a limpid, alkaline, colorless fluid, with a pH of 7.1 to 8.2. It is not secreted at a uniform rate, but varies with the emptying of acid gastric chyme into the duodenum. The mucosa of the duodenum and upper jejunum when stimulated by acid chyme, liberates into the blood stream a substance called secretin, which in turn stimulates the flow of pancreatic juice when it reaches the acinar cells in the pancreas. This is the hormonal factor in the external secretion.

A second factor controlling the flow of pancreatic juice is nervous stimulation by way of the vagi. Vagal control regulates the concentration of the coenzymes in the juice, whereas secretin stimulates the qualitative flow, causing an increase in the fluid and salt content of the juice. Thus there is a double control of pancreatic external secretion, which must be considered and understood in any discussion of the laboratory tests of pancreatic function.

The ferments of pancreatic juice are trypsin, chymotrypsin, amylase, lipase, renin and maltase. Unlike the gastric enzymes, apparently those of the pancreatic juice are produced by one type of cell. There are at least two proteinases in pancreatic juice: trypsin and chymotrypsin. Trypsin is not secreted as such, but in an inactive form called trypsinogen. The activation was first shown in Pavlov's laboratory to be brought about by the addition of a small quantity of intestinal juice or extract of the intestinal mucosa. The activation is due to an enzyme called enterokinase. There has been some discussion as to whether this is a true enzyme, but there is no doubt that its enzymic nature is now accepted. Trypsinogen may also be activated by physiochemical methods in the laboratory. Chymotrypsin is also secreted in an active form called chymotrypsinogen, and is activated by enterokinase but not by trypsin. These two enzymes, trypsin and chymotrypsin, are mainly responsible for the proteolytic activity of pancreatic juice. Trypsin has no milk-curdling power, but is capable of clotting blood, whereas chymotrypsin, although it will not cause coagulation of blood, has a powerful milk-curdling action and is probably identical with pancreatic renin. The action of trypsin carries the digestion of protein beyond the peptone stage. It also differs from peptic digestion, being carried out in an alkaline instead of an acid medium. Trypsin commences its action after the gastric juice has converted a large part of the protein into proteoses and peptones. Experimentally, flesh introduced directly into the duodenum is readily digested by the pancreatic juice. Specific action of trypsin is to break the proteose and peptone fragments of the protein molecule into smaller amino acid groups. These are generally termed peptides. Further complete breakdown of protein is reserved for the erepsin of the succus entericus in the bowel.

Pancreatic amylase or amylopsin or diastase has an action similar to but much more powerful than that of salivary amylase or ptyalin. In the hydrolysis of starch by pancreatic juice, the starch is converted into maltose within a very few minutes. It is important to remember, in connection with infant feeding, that during the first few weeks of life, the pancreatic amylase, the only really efficient ferment for the digestion of starches, is absent from the pancreatic juice. Therefore, little provision has been made for the digestion at this time of any other food than milk. The amyolytic ferment of the pancreas finds the chloride ion absolutely essential for its action, and acts best when the medium is faintly acid and neutral. Fat is not digested to any important extent until it has reached the intestine. Here the lipase splits the fat molecule into its constituents, fatty acids and glycerine. A certain proportion of the fatty acids combine with the alkaline intestinal fluids to form soaps. These, through their property of lowering surface tension, aid in the division of the fat into smaller globules. Bile salts have a similar and important effect upon the emulsification process and, therefore, greatly enhance the fat-splitting action of steopsin or pancreatic lipase. Pancreatic renin has an action similar to that of gastric renin. Pancreatic juice has a much more powerful milk-curdling power than has gastric juice. It is probable that the action is not due to a separate enzyme but to chymotrypsin.

A discussion of the historical background and the physiological principles involved in the action of insulin is not within the scope of this paper. The literature in recent years contains much material attempting to correlate the functions of the liver with those of the pancreas and the relation of pancreatic function to some of the degenerative changes, fatty and otherwise, in the liver. I am sure that all of us have long ago made the observation that many diabetics have some impairment of liver function and even an hepatomegaly. In the laboratory, completely depancreatized dogs observed over a period of 10 to 12 weeks, regardless of insulin therapy, show, among other lesions, a severe fatty infiltration of the liver. Hershey felt that the administration of large daily doses of lecithin had a sparing effect on this liver degeneration and Brest and his associates claim that this effect is due to the choline content of the lecithin. It has also been shown in experimental animals and in clinical cases, that a complete pancreatic fistula, with total exclusion of pancreatic juice from the gastrointestinal tract, results in marked dehydration, electrolytic imbalance and death within a period of two to six weeks. There is shown loss of plasma base, urine chlorides, bicarbonate, a shift to the acid side of the pH, increase in non-protein nitrogen and urea in the blood. We therefore see how closely related diseases of the liver can be with disturbed pancreatic function.

We shall first concern ourselves with acute pancreatitis. This term includes several types of acute inflammatory processes: the lesions caused by the escape of the enzymes of the pancreatic juice through the acinar cells as a result of obstruction; secondly the lesions caused by bacterial invasion and the so-called apoplexy of the pancreas—the result of a rupture of a large vessel with sudden severe hemorrhage into the organ. These processes may merge one into the other, but the pathogenesis of the different types is now better understood.

The first clear-cut correlation of the gross pathology and symptomatology of acute pancreatitis was made by Reginald Fitz in his classical monograph in 1889. He, however, did not distinguish the pathogenesis of the several varieties. Opie, in 1901, described a case of acute pancreatitis in which the flow of infected bile into the pancreas from the common duct, due to a stone impacted in the ampulla, popularized the "common-channel" theory of the etiology of the lesion. Others have cited that the incidence of dilatation of the pancreatic duct was no greater in patients with fat necrosis than in the control group, suggesting that pancreatitis is not explained by a lesion leading to duct obstruction.

Several experimental studies have been made in an attempt to explain the pathogenesis of acute pancreatitis. In one, a series of experiments on sixty-four cats was carried out to show the influence of ligation of the pancreatic duct, of starvation, of feeding and of secretin and pilocarpine injections. It was clear that ligation of ducts alone in a starved animal was not followed by necrosis. However, obstruction in the fed animal or in the animal whose pancreas has been stimulated by either secretin or pilocarpine, led to varying degrees of fat necrosis. Indeed, working on cats, Elman and Butcher showed that when the pancreatic ducts were ligated and the animals were fed, they showed evidence of fat necrosis between 48 hours and 6 days, even though no pancreatic stimulus by a drug was given.

In the second study, carried out on dogs and rats by a variety of injections into the pancreatic duct, either with or without ligation, it was shown in general that activated pancreatic juice, particularly when the duct is ligated, produces pancreatic necrosis, an observation which has been made many times in the past.

One of the most provocative studies was the third, which seemed to show one manner in which pancreatic edema may be converted into pancreatic necrosis. Pancreatic edema was produced in all experiments by means of duct ligation followed by the stimulation of the pancreas with secretin injections. However, in addition to this, in ten dogs, using seven as controls, varying degrees of occlusion of the main pancreatic artery were produced in a period of fifteen minutes. In each experiment, pancreatic necrosis followed the vascular occlusion and the degree of necrosis varied with the degree of edema present before the arteries were occluded. Inasmuch as vasospasm is known to follow as a reflex action from pain, these experiments seem to have a real clinical application by suggesting the need for prompt control of pancreatic pain.

In another study, Archibald showed that by producing a spasm of the sphincter of Oddi and by increasing the bile pressure, an acute pancreatitis could be produced in a certain percentage of animals. Dvagstad and his co-workers brought forward evidence to show that the lesions in pancreatitis were caused by the combined action of bile salts and anerobic bacteria.

The controversy regarding the pathogenesis of acute pancreatitis is still active, and Rich and Duff, in 1936, published experimental studies that seemed to establish the exact pathology of the vascular changes caused by the escape of pancreatic ferments between the acinar cells into the interstitial tissue of the organ with subsequent hemorrhage, digestion and necrosis of the organ. Some of their observations were on the vascular changes which result from trypsin digestion and they suggested that the activity and the concentration of trypsinogen or trypsin determines the degree of edema and the extent of vascular damage. However, it is another way of explaining the discrepancy in symptomatology and operative findings which vary from a mere edema of the pancreas to the extensive hemorrhage and necrosis of the organ in the severe fatal cases.

The escape of pancreatic juice into the interstitial tissue may cause edema, fat necrosis and vascular necrosis with hemorrhage, depending upon the concentration and activation of the lipolytic and proteolytic ferment of the escaping juice. With edema the symptoms are as a rule milder and the damage is quickly repaired. No doubt the metabolism of a certain number of cells is interfered with to the point where they die. Since the introduction of serum amylase determinations as a diagnostic test of acute pancreatic duct obstruction, it is now recognized that many cases of mild and even severe epigastric pain and tenderness are associated with edema of the pancreas or of scattered areas of fat necrosis, for when operated upon at the time, days or weeks later, the evidence of areas of fat necrosis are found. The majority of patients with this type of edema or interstitial pancreatitis recover with conservative treatment.

From the above brief discussion on the pathogenesis of acute pancreatitis, it can readily be appreciated what the pathologic findings in the cases of acute pancreatitis will be and that they are directly dependent upon the concentration and extent of the destructive process within the pancreas. Pathological findings vary from a diffuse edema of the head or all of the pancreas to slightly elevated areas of pinhead size to 1 cm., ivory-colored, fat necrosis in the omentum and fatty tissue around the pancreas; to patchy or diffuse areas of hemorrhagic infiltration or necrosis of part or of all of the organ. In the cases with hemorrhage and necrosis, a sanguinous fluid is usually found in the peritoneal cavity, especially around the pancreas and the lesser sac.

It is obvious that the degree of hemorrhage and necrosis of the organ determines the severity of the symptoms of the vasomotor collapse that is so characteristic of a severe lesion. These latter symptoms follow the absorption of a split protein product of the trypsin itself. The shock is related to what is known as peptone shock in experimental animals. The changes in the fluid and electrolyte balance associated with the profoundness of the shock, make any surgical procedure very hazardous. In the past when these cases were considered immediate emergencies, the operative mortality was prohibitively high.

The cardinal symptoms of acute pancreatitis are pain, nausea and vomiting. The general symptoms of acute pancreatitis may exactly simulate those of other conditions producing acute abdominal distress. Usually, the onset and course of the disease are such as to make the case fit one of the following five descriptions. I am sure that almost all of us at one time or another have been in attendance on a patient with pancreatitis and that in retrospect, you will agree that he came under any one of the five following clinical syndrome patterns.

Group I.— This type is characterized by the sudden onset of a severe, excruciating upper abdominal pain, commonly occurring in an elderly, obese, florid male, who has eaten a large meal several hours previously, preceded by several highballs. Immediately following the onset of pain, nausea and usually profuse vomiting occur. The patient is in profound shock with cyanotic, mottled skin, diffuse tenderness and minimal to severe rigidity of the abdomen. Ecchymosis or bluish discoloration in either or both flanks or about the umbilicus may subsequently occur. Death commonly follows in 48 to 70 hours, in spite of all forms of therapy directed at control of the acute pancreatitis. This is the usual textbook description of the disease, but fortunately this group represents only a small percentage of the cases. Into this group also fall those patients with symptoms simulating those of acute coronary occlusion, with pain in the left upper quadrant of the abdomen or in the precordium.

The remaining four clinical picture patterns, which are representative of the more common forms of the disease, are not sufficiently emphasized in the standard textbook.

Group II.—This syndrome simulates that associated with acute cholecystitis, with sudden onset of moderately severe epigastric or right upper quadrant abdominal pain, which may radiate through to the back or around the right costal margin to the back. The onset of pain is followed by nausea and vomiting, usually moderate in amount, sometimes profuse. Occasionally there may be associated mild or moderate jaundice, which further confuses the clinical diagnosis. This particular group is representative of those cases of acute pancreatitis involving primarily the head of the pancreas. In such cases the patient is in the early course of the disease and may be relieved of symptoms by the use of right paravertebral blocks.

Group III.—In this group the symptoms are typical of acute mechanical small intestinal obstruction. The patient may have intermittent generalized rhythmic, cramp-like abdominal pain, associated with nausea and vomiting, with both clinical and x-ray evidence of distention of the small bowel. Patients in this group usually present no obvious cause for the obstruction, such as an external hernia or abdominal scar. Commonly present is a physical finding which is normally not present in intestinal obstruction—this is flank tenderness, either unilateral or bilateral, which is caused by retroperitoneal extravasation of pancreatic fluid. In the past, the largest number of mistaken diagnoses was among patients in this classification. It is now routine to determine blood amylase and urinary diastase in all cases of apparent mechanical small intestinal obstruction at some clinics.

Group IV.—The picture is that of acute alcoholism with acute gastritis, characterized by upper abdominal pain with nausea and profuse vomiting. These symptoms may be mild to severe. This group commonly includes patients diagnosed as slow, leaky peptic ulcer, induced by a recent bout of alcoholism. Because of the known high incidence of acute pancreatitis associated with or during acute alcoholism, the diastatic activity is determined routinely at Los Angeles County General Hospital in any case in which an alcoholic patient is admitted with abdominal symptoms.

Group V.—This group includes those cases in which the patient has a mass in the epigastrium or left upper quadrant of the abdomen. Such patients frequently give a history of having had an attack of abdominal pain with nausea and vomiting three or four weeks previously. This represents an attack of acute pancreatitis which has progressed into one of its complications: a pseudocyst, a collection of exudate in the lesser sac or rarely a pancreatic abscess.

Associated Symptoms.—Diarrhea is also an associated symptom and in one series occurred in twenty-two out of 307 cases. It is a symptom also which may cause confusion with the picture of acute gastroenteritis or enterocolitis. Another associated symptom may be gastrointestinal hemorrhage. Its presence may be manifested by blood in the vomitus or in bloody diarrhea. In going through the literature, this symptom has not been found to be very common and the same holds true with the St. Mary's series.

The diagnosis can sometimes be made from the history alone, as most cases will fall into one of the previously described groups. The physical findings vary considerably according to the stage of the disease and the severity of the process. Practically all patients have moderate to severe abdominal tenderness, most pronounced in the epigastrium, right upper quadrant or left upper quadrant of the abdomen. Later in the disease there may be diffuse abdominal tenderness after the extravasation of bloody fluid from the pancreas into the peritoneal cavity. The patients commonly have unilateral or bilateral flank tenderness and this finding is rarely present in other acute conditions of the abdomen. There will also be a bluish discoloration or ecchymosis in either flank, which is known as Turner's sign, or rarely a bluish discoloration or ecchymosis about the umbilicus. This is known as Cullen's sign.

With regard to the diastatic activity, the blood amalyse becomes elevated within the first twenty-four hours in acute pancreatitis, and frequently remains normal for the first twelve to eighteen hours. The amylase then remains elevated for twenty-four to seventy-two hours, depending upon the severity of the disease; but frequently returns to normal before clinical subsidence of the process. It is very important to know this because if this fact is not known, occasionally a presumptive diagnosis of acute pancreatitis will be changed merely because the serum amylase determination was normal, whereas in reality had this determination been made within the first seventy-two hours, it would have been markedly elevated and would corroborate the presumptive diagnosis. Urinary diastase commonly does not increase until twenty-four hours after the increase in blood amylase, but remains elevated twenty-four to forty-eight hours longer than the amylase. As these time elements are not constant and the reverse may occur, Paxton and Paine, of Los Angeles, recommend the simultaneous use of both tests in any suspected case of acute pancreatitis. We must not forget that there are other non-important causes for increase of amylase; and recently it has been thought that morphine could cause an elevation of the serum amylase, so it would be wise to draw the blood for this test immediately on admission.

Roentgenologic studies as an aid in the diagnosis of pancreatitis are not very helpful. They may show a segmental ileus of any section of the gastrointestinal tract, but this occurs most frequently in the transverse colon. X-ray study is purely of negative value, but naturally will be most valuable in differentiating pancreatitis from any condition resulting from perforation of a hollow viscus.

The blood calcium may be lowered due to the utilization of the ionizable calcium, which combines with the fatty acid in the formation of calcium soaps, a process indicated by the characteristic areas of fat necrosis. Recognizable lowering of the calcium occurs, however, only in the moderate and severe stages of the disease. A low level of calcium is probably most useful in diagnosis in the case of patients in the late stage of the disease after diastatic activity has returned to normal.

The treatment of choice in uncomplicated acute pancreatitis is non-surgical. For this reason it is important that physicians be alert for acute pancreatitis so that the diagnosis may be made early clinically rather than at the time of surgical exploration.

Basic in the conservative treatment of acute pancreatitis is to put the pancreas as nearly at rest as is physiologically possible. To this end, treatment should include: (1) continuous nasal gastric suction; (2) adequate sedation; (3) adequate and regular use of atropine sulfate; (4) sufficient parenteral fluids to maintain water and electrolyte balance; (5) possible arterial antispasmodics. Following the work of Truetta on the role of arterial spasm, Paxton and Paine have been using paravertebral blocks, either unilateral or bilateral, depending upon the clinical location of the disease. Intravenous novocaine was used and more recently, epidural block. Epidural block has certain advantages. It requires the use of only one injection site and it interrupts the sympathetic as well as the sensory fibers, which gives the patient immediate relief of pain. Splanchnic block is also effective. The use of continuous nasal gastric suction produces several desirable effects:

(1) It gives the patient symptomatic relief by controlling vomiting.

(2) It prevents the acid gastric secretions from entering the duodenum, thus reducing the hormonal stimulation of the pancreas to a minimum.

(3) It prevents acute gastric dilatation and helps control ileus. One important fact in the non-surgical treatment is to continue nasal gastric suction at least twenty-four hours after the temperature has returned to normal. When the suction is discontinued too early, an acute exacerbation commonly occurs. To me it would seem that absolute control of the severe shocking pain that is so characteristic of acute pancreatitis is absolutely essential. I think that none of us would deny that pain is also a very important contributing element in the production of shock, and inasmuch as shock, in addition to the so-called foreign protein or peptone shock element of pancreatitis, is the main cause of death in those cases of acute hemorrhagic pancreatitis, I think you will agree that abolishing pain is not only humane but one of the best points of treatment.

The food and caloric requirements are met by giving 3,000 to 4,000 cc. of 5 per cent glucose solution intravenously daily. No insulin is given unless there is associated diabetes. In passing, it is also important in patients with acute pancreatitis, to determine the blood sugar, because it is at this time that some of them become diabetics and intelligent management and treatment depend to a great extent on whether diabetes is superimposed or not. In cases in which prolonged nasal gastric suction is necessary, frequent determination of the carbon dioxide combining power, the blood sodium and potassium are necessary.

Atropine sulfate is given in large doses, .6 to .8 mgm. regularly every three to four hours. This is done to suppress the vagus effect on the pancreas. Vagus stimulation produces pancreatic juice rich in enzymes. Atropine also produces some degree of relaxation of the sphincter of Oddi. Morphine sulfate is given regularly to control the pain of pancreatic necrosis. The morphine also decreases the activity of the gastrointestinal tract. Penicillin in adequate dosage may be and has been used and is only of questionable value.

Although it is felt that a cholecystogram should be made routinely following an attack of acute pancreatitis, in severe cases, acute exacerbation has developed immediately following x-ray of the gallbladder. Therefore, some authors now postpone this procedure until at least 8 weeks after an acute attack. In mentioning parenteral fluids in the treatment of pancreatitis, I neglected to state that transfusion of blood or plasma may be given as indicated. I could find nothing in the literature on the use of the newer synthetic substances intravenously in severe shock states.

If, with improvement in pulse and blood pressure on the above conservative treatment, the patient continues to have severe pain and signs of spreading peritoneal irritation, and especially if jaundice appears or serum bilirubin shows a rising figure, surgery is indicated. Proper procedure is to sidetrack the bile by cholecystostomy and to relieve intra-abdominal pressure and drainage of the peritoneal exudate. The former procedure of attempting to incise the capsule of the pancreas and to puncture the organ for drainage purposes results only in further damage to the pancreas and is to be condemned. A cholecystostomy and cigarette drains to the area of the inflamed pancreas should be the limit of the operation. If the patient improves and does not show evidences of bile blockage, he should be treated conservatively and watched for a localized suppurative process. The development of an abscess may take several days or even weeks, and is indicated by the usual signs of abscess formation, such as rising or persistent temperature, persistent leukocytosis and a localizing area of tenderness over the head, body or tail of the pancreas. With this localization of an abscess, operation for drainage is always indicated. In no type of case is wholehearted cooperation between the physician and surgeon more essential in the proper management.

Prognosis is variable. In the patients who fail to respond to conservative therapy and require operation, the mortality is necessarily high, varying from 10 to 30 per cent. In a series of sixty-two patients operated upon at Presbyterian Hospital between the years 1916 and 1941, the mortality was 29 per cent. In a smaller number, not operated upon, the mortality was 17 per cent. Series reported by Elman and Butcher, St. Louis, 27 per cent of those treated conservatively died, including those who were admitted in extremis; and of over 100 cases operated on, there were 46 deaths, or a mortality of 44 per cent. From personal experience and from a study of the literature, the general impression is gained that conservative therapy for acute hemorrhagic pancreatitis is still the treatment of choice in most cases. In the very severe fulminating lesions with hemorrhage and necrosis, the cause of rapid death is not explained. Profound shock, no doubt, is a factor. Archibald found areas of focal necrosis in the liver of experimental animals in whom death occurred as early as half an hour after the production of hemorrhagic pancreatitis. Some Irishman in Dublin reported a group of thirty-one patients in whom the rapid death and the absence of any obvious cause required a coroner's inquest. There was a history of drinking in all the cases, but the only constant lesion was found in the pancreas and was that of necrosis; so we see that acute pancreatitis or pancreatic necrosis can lead to sudden death although the exact mechanism of the same is not exactly understood.

I would like to mention briefly a few statements concerning chronic relapsing pancreatitis. This is a term not used until Comfort, Gamble and Blankenstoss, in 1946, presented studies of twenty-seven such cases. It is their contention that a chronic relapsing pancreatitis is a disease of recurrent acute episodes of severe abdominal pain which are progressive and gradually become so severe and so frequent as to be intractable. It is not a common disease, approximately twenty cases being encountered each year in the early 1940's at the Mayo Clinic. It is now more frequently recognized than it was formerly. Curiously, it predominates in the male, 6 to 1. Patients who have the disease are usually not obese. In these last two respects it differs from disease of the biliary tract. It is more common in patients in middle age and in alcoholics. There are certain findings that strongly suggest that chronic relapsing pancreatitis is not necessarily secondary to disease of the biliary tract, but may be, and frequently is, independent of it. These men have shown that grossly the pancreas is indurated and sometimes nodular and that microscopically fibroblastic proliferation and fibrosis are prominent features. Gross atrophy of the gland, pseudocyst formation and macroscopic calcification are characteristic of the disease. Interstitial fibrosis and residual necrosis of tissue are other constant findings. It appears that this form of pancreatitis may be responsible for dilatation of the gallbladder and that the degree of pathological change in the gallbladder and ducts has some relationship to the extensiveness and activity of the disease in the pancreas. Recurring acute severe prolonged exacerbations of upper abdominal pain separated by intervals of relative or complete clinical quiescence are characteristic of the disease. Pain is the outstanding clinical feature of the acute attack and is usually steady and frequently and characteristically it radiates to the left upper quadrant of the abdomen to the back. Intervals between attacks vary greatly. It may be years in the early stages of the disease. As the disease progresses, the intervals shorten and become marked by persisting digestive symptoms, signs of disturbance of pancreatic function and, at times, by diabetes. In the interval between attacks there are frequently no symptoms in the early stage of the disease. In approximately half the cases observed by Comfort, pronounced permanent sequelae including diabetes, steatorrhea and calcification of the pancreas were present and observable in the interval between acute painful exacerbations of the disease. Laboratory data obtained during acute attacks may reveal leukocytosis, acceleration of the sedimentation rate and evidence of jaundice.

The following phenomena, if present, are useful in substantiating the diagnosis: elevation of values for amylase and lipase in the serum and of the value for fecal solids, fat or nitrogen in the stool by chemical analysis; grossly fatty stools and excessive amounts of fat by microscopic examination. In some cases in which accurate studies can be made of the value of the bicarbonate and enzymatic concentration of duodenal content after stimulation with secretin, the finding of values lower than normal may be useful in substantiating the diagnosis. X-ray studies may reveal multiple areas of calcification throughout the pancreas. However, the course followed by the patient may be diagnostically important because it may be typical showing acute, severe prolonged upper abdominal pain associated with transient elevations in value of serum lipase of amylase and perhaps hyperglycemia during the attack. This is generally followed over a period of years by more

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MENINGITIS DUE TO SIMULTANEOUS INFECTION WITH MYCOBACTERIUM TUBERCULOSIS AND A STAPHYLOCOCCUS

Report of a Case

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MENINGEAL infections in which two organisms can be isolated simultaneously from the spinal fluid are uncommon. In a recent comprehensive review of this subject, Riley[4] collected thirty-three well-documented cases of dual infection from the world literature since 1911 and added an additional case of coexisting meningococcal and tuberculous meningitis. Riley's case is apparently the first type of a dual infection of this type reported in the American literature. It is the purpose of this paper to present a case of simultaneous meningeal infection with Mycobacterium tuberculosis and a Gram-positive coccus which was probably an altered staphylococcus. This combination of infecting organisms was not found in the cases collected by Riley from the world literature.

Case Report

I. E., an eighteen-year-old single white girl, was first seen at the Ancker Hospital in July, 1946, when she was admitted to the Obstetrical Service at the termination of an apparently uneventful pregnancy. General physical and laboratory examinations at that time disclosed no significant abnormalities. She was delivered of a normal male infant after a normal labor. The postpartum convalescence was rapid and complete and she was discharged apparently well.

In January of 1947 she was employed as a maid and elevator operator in a tuberculosis sanatorium where she worked for two months. Her contact with patients having open pulmonary tuberculosis was limited to serving of food and cleaning duties under the usual isolation technique. During this period, she had no apparent change in health.

She was next seen on May 25, 1948, when she was admitted with the chief complaint of enlargement of the lower abdomen for three months. There was some variability in the degree of the enlargement from day to day. She had experienced two short attacks of sharp, non-radiating pain in the lower abdomen at the onset of the abdominal enlargement. She admitted that she had had a moderate amount of creamy vaginal discharge since the birth of her child two years previously. For two weeks prior to her admission, she had noted a low-grade fever, especially in the afternoon, with symptoms of malaise, fatigue, and anorexia during the period of temperature elevation.

Her past history revealed only the usual diseases of childhood, a tonsillectomy, and an appendectomy at age eleven. She had had a mild non-productive chronic cough for several months. Her weight had been maintained. There was no history of further contact with tuberculous patients.

Physical examination at this time revealed a temperature of 100 degrees F. and a pulse of 100 per minute. She was comfortable and did not appear ill. The mouth showed many severely carious teeth. The chest was entirely normal to physical examination. The heart was normal in size and shape. The mitral first sound was broadened and roughened. There was a short, soft, blowing, apical systolic murmur which was not transmitted. The abdomen was enlarged below the umbilicus with a soft, bulging, non-tender mass which seemed to be distended small bowel. No organs or other masses were palpable, bowel sounds were normal, and signs of peritoneal irritation were absent. Pelvic examination revealed tubal thickening and tenderness bilaterally with a slight amount of creamy vaginal discharge.

At this time the urine, hemoglobin, and red blood cell count values were normal. The white blood cell count was 5,600 per cu. mm. with a normal differential count. A Friedman test for pregnancy was negative. A cervical culture and smear were negative for Neisseria gonorrhea. The sedimentation rate was 41 mm. per hour. A roentgenogram of the chest was normal.

For the first six weeks of hospitalization, her temperature varied between approximately 101 degrees and 103 degrees F. orally with a few frank chills during this time. Her cough became more prominent. She was treated with penicillin, 80,000 units intramuscularly every three hours for a week without response. She was given sulfadiazine for three days until all medications were discontinued because of the possibility that drug intolerance might be responsible for the continued fever. There was no change in the clinical course, and penicillin in doses of 100,000 units intramuscularly every three hours was again administered for four days without clinical effect.

During this interval, a white blood cell count was 4,500 per cu. mm. with a normal differential formula. A battery of serum agglutination studies were negative on several occasions. The Mantoux reaction was negative to 1:10,000 and 1:1,000 dilutions of old tuberculin.

Two weeks after admission a roentgenogram of the chest revealed minimal bilateral pleural effusion and some congestion and infiltration in the right lung base.

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A hematologic study revealed normal hemoglobin and 6,250 white blood cells per cu. mm. with 71 polymorphonuclears, 20 lymphocytes, 3 monocytes and 6 eosinophils per one hundred cells. A thoracentesis removed 100 cc. of straw-colored fluid from the right pleural cavity, but unfortunately this material was lost prior to examination. A blood culture was sterile. Repeated roentgenograms of the chest during the following 4 weeks showed resorption of the fluid on the left with persistence of the fluid on the right and no change in the appearance of the lung parenchyma.

The patient then began to feel poorly with recurring anorexia, nausea and vomiting. She became irritable, depressed and unco-operative and took on much of the appearance of chronic illness. The abdominal enlargement persisted, and gradual development of an indefinite mass of somewhat firmer consistency extending from the pelvis to the level of the umbilicus was noted. Pelvic examinations showed an enlarging, slightly tender, firm, cystic feeling mass lying in the cul-de-sac and adnexal regions bilaterally, with induration extending into the anterior vaginal wall.

Colpotomy and culdoscopy were performed, but the pelvic organs could not be visualized due to adhesions and inflammatory reaction. On June 30, 1948, she was again given penicillin therapy, 100,000 units intramuscularly every three hours. Sulfathiazole was given for a period of one week. Twelve days later she became afebrile. Coincidentally, she began to feel much improved and was gradually mobilized without event. Pelvic examination at this time showed persistence of the mass with a decrease in tenderness and induration. On July 19, 1948, she was discharged. She was seen in the Out-Patient Clinic on three occasions during the two months following discharge. She complained of some intermittent lower abdominal pain, but had had no fever and felt well. The sedimentation rate on one visit was 28 mm. per hour.

The final hospitalization occurred on September 15, 1948, when she was admitted complaining of constant frontal and occipital headache which had begun suddenly twelve days previously. A stiff, sore neck and back developed about ten days before admission. She had had moderate general malaise, nausea, and vomiting since the onset of the headache. The day before the onset of this illness, a severely carious, infected third molar had been removed and five days later another similar third molar had been extracted. The extractions seemed uneventful. Two days before admission she noted the onset of transient tinnitus and blurred vision with photophobia. On the day prior to admission she felt a vague, transient weakness of the left arm.

Physical examination at this time revealed a temperature of 102.4 degrees F. orally, a pulse of 90 per minute and respirations of 20 per minute. The blood pressure was 110/70. She appeared acutely ill, tense, apprehensive, emotionally unstable, and dehydrated. The eyes, including funduscopic examination and the ocular movements, were normal. The ears, paranasal sinuses, nose and throat were normal. The right lower and upper left third molars had been recently removed. The sockets appeared healthy and healing. The neck was rigid to flexion and pain was severe when this was attempted. There were moderate decrease of resonance to percussion and diminished breath sounds over the right base posteriorly and laterally upon examination of the lungs. The cardiac findings were unchanged. Neurological examination revealed no cranial nerve abnormalities. There was no localized muscular weakness. Sensation was normal except for a vague hyperesthesia over the left half of the body. Co-ordination was normal. The deep tendon reflexes in the upper extremities were normal and in the lower extremities were absent. There were no Hoffman or Babinski signs. There was marked limitation of straight-leg-raising bilaterally with pain and spasm of the paraspinal muscle groups.

At this time the white blood count was 9,500 per cu. mm. with 89 polymorphonuclears, 10 lymphocytes and 1 monocyte per 100 cells. The urine obtained following a glucose infusion showed 1 per cent glucose and 1+ acetone, but was otherwise normal. A lumbar puncture showed an initial pressure of 230 mm. of spinal fluid, and a normal reaction to jugular compression. Faintly cloudy fluid (20 cc.) was removed, which contained 426 white blood cells per cu. mm. of which approximately 90 per cent were polymorphonuclear, and 10 per cent mononuclear cells. Spinal fluid glucose was 20 mg., chlorides 587 mg., protein .35 gm., per 100 cc., and the Wassermann and colloidal gold reactions were negative in all tubes. A direct smear of the centrifuged fluid stained with Gram's stain demonstrated many small clumps of large Gram-positive cocci. An acid-fast stain of a centrifuged specimen was negative for acid-fast organisms. A pellicle did not form upon incubation of the fluid. Cultures on red blood plates revealed a large Gram-positive coccal organism growing in small colonies.

The clinical impression on admission was that the patient had meningitis, which seemed most likely to be tuberculous. In view of the bacteriological findings, however, the diagnosis of an acute staphlococcal meningitis was later made.

Soon thereafter she became delirious, confused, and unco-operative. She was given penicillin, 200,000 units intramuscularly every two hours, and 200,000 units intravenously twice daily. A lumbar puncture three days later revealed a pressure of 450 mm. fluid, normal dynamics, and a faintly turbid fluid showing 443 cells per cu. mm., approximately 90 per cent of which were polymorphonuclear cells. The staphylococcus was again cultured from this fluid. Intrathecal injections of 10,000 units of penicillin in 10 cc. of saline were then given twice daily. Another lumbar puncture revealed essentially the same findings, with the staphylococcus again being isolated. Penicillin dosage was increased to 500,000 units intramuscularly every two hours and 500,000 units intravenously twice daily on the presumption that the organism isolated was penicillin-resistant.

The temperature ranged between 101 and 103.6 degrees F. during this interval, and a slight clinical improvement was noted with decline of the fever. Roentgenograms of the chest, sinuses and skull were interpreted as normal. Three blood cultures were sterile. Physical findings including neurological examination remained unchanged.

The clinical improvement was short-lived, and she again became disoriented and unco-operative, with a rising fever and urinary retention. Sulfadiazine was then added to the therapy. A spinal fluid cell count was done at the time of each lumbar puncture for instillation of penicillin; these counts varied from 260 per cu. mm. to 564 per cu. mm. The differential counts consistently showed approximately 90 per cent polymorphonuclear leucocytes. The staphylococcus was isolated on culture several times following institution of intrathecal penicillin therapy. Spinal fluid pressures continued to rise to over 650 mm. of fluid. The white blood cell count was 14,150 per cu. mm. with 90 polymorphonuclears, 5 lymphocytes and 5 monocytes per 100 cells on the fifth hospital day. Her general condition continued to deteriorate. The temperature rose progressively and she developed a marked ileus. She showed a variable degree of delirium. Six days after her admission she suddenly went into deep coma, developed Cheyne-Stokes respirations and expired.

Approximately two hours after death, autopsy was performed by the Department of Pathology of Ancker Hospital under supervision of Dr. John Noble, Chief Pathologist. Following is a summary of the significant positive findings.

Autopsy Findings

Abdomen.—Both parietal and visceral peritoneal surfaces were found to be studded with firm yellow nodules from 1 to 10 mm. in diameter. The loops of bowel were firmly adherent to one another with dense adhesions, binding the entire bowel into a single mass. There was a large abscess containing a thick, granular, necrotic, yellow-white material posterior to the uterus. There was no free peritoneal fluid. The appendix was absent.

The tubes and ovaries were bound into a mass by dense adhesions bilaterally. The tubes were enlarged to approximately twice normal diameter. The walls were thickened and the lumina contained a caseous, white material. The corpus of the uterus appeared to be normal, although the cervix was bluish in color and patulous and the entire organ was firmly adherent to the posterior wall of the urinary bladder.

Thorax.—Both lungs were partially adherent to the parietal pleura. There was no free fluid in either pleural cavity. There were a few small, yellow, firm nodules in the pleura medially and in the apex of the pleural cavity on the right. The heart and pericardium were normal.

The right lung weighed 190 gm. On cut section it appeared normal. The left lung weighed 195 gm. It was normally crepitant, and appeared normal on cut section except for a slight increase in blood and fluid in the lower lobe.

Head.—The brain weighed 1,280 gm. There was a fine fibrinous exudate localized largely to the base of the brain and upper end of the cord. The lateral ventricles were enlarged to twice normal size. The brain was of softer consistency than normal, especially over the left temporal area. There were no areas of hemorrhage, infarction, or abscess on cut section.

Microscopic Findings.—There was marked round cell infiltration in all layers of the meninges. The brain showed a marked perivascular infiltration with round cells around the meningeal vessels. The bowel showed areas of caseation and round cell infiltration with typical Langhans giant cells in the bowel wall. The hilar lymph nodes showed areas of caseation, surrounded by epithelioid cells and Langhans giant cells. The lung showed the alveoli to be distended with a pink-staining homogeneous material. Many of the septae were thickened and the capillaries congested. Scattered throughout both lungs were many minute isolated tubercles. Other organs appeared within normal limits.

Final anatomical diagnosis.—Tuberculous meningitis, pulmonary tuberculosis, tuberculous peritonitis.

Several weeks following autopsy of this patient, the guinea pigs which had been innoculated with the spinal fluid on admission were sacrificed and examined and typical tuberculous lesions were demonstrated.

Comment.—Several unusual features of this case are of interest. The clinical picture presented by the patient when first seen during the final phase of her illness strongly suggested tuberculous meningitis, and this diagnosis was tentatively made. This was strengthened by the strong probability that the pelvic infection was tuberculous in etiology, in spite of the negative chest roentgenographic findings and a negative Mantoux reaction. The repeated presence of a Gram-positive coccus with cultural characteristics and appearance of a staphylococcus in the spinal fluid was thus an unexpected finding. This led to the erroneous impression that the staphylococcus was solely responsible for the meningitis in spite of the spinal fluid cell count which was certainly unusual in a meningitis due to an organism of the coccal group.

The route by which either of these organisms gained access to the meninges is not clear. A ruptured tuberculoma was not demonstrated although the brain was carefully sectioned with this in mind. The spinal cord was not examined at autopsy and the possibility remains that a small ruptured tuberculoma existed here. There were no neurological findings suggestive of a cord lesion however. There was neither clinical nor roentgenographic evidence of tuberculous osteomyelitis of the spine. The time relation between the extraction of the infected teeth and the onset of symptoms of meningitis suggests that bacteremia following this extraction might have resulted in infection of the meninges with the staphylococcus. The unusual degree of resistance of this organism to penicillin both clinically and *in vitro* further suggests that it may have been related to the dental infection and that it was present at the time when she received the prolonged courses of penicillin. The antibiotic resistance of the organism may well have been enhanced in this fashion.

The staphylococcus was studied in detail by Dr. Ellard Yow of the Bacteriology Laboratory of the Department of Medicine, University of Minnesota Medical School. Antibiotic sensitivity studies were carried out. The organism was not inhibited by 78 units per ml. of penicillin and 10 micrograms per ml. of streptomycin. These levels are well beyond the levels usually attained clinically and justify the conclusion that the organism was relatively resistant to these substances. It was sensitive *in vitro* to aureomycin.

The reason for the minimal cellular reaction observed in the spinal fluid of this patient is also not clear. Riley noted in his case and in several others reported, in which one of the organisms present was Mycobacterium tuberculosis, that the polymorphonuclear exudate usually found in infections with a pyogenic organism, was replaced by a lymphocytic reaction with relatively low total spinal fluid cell counts. Several possible explanations of this phenomenon might be entertained. In the present case, the low spinal fluid cell response and lack of typical purulent meningeal involvement at autopsy might be related to some alteration in the staphylococcus by previous prolonged exposure to penicillin and sulfonamide drug. More likely, however, is the possibility that the presence of tuberculous involvement of the meninges in some way changed the response of these tissues to a usually pyogenic organism and thus changed the character of the exudate. The cases noted by Riley which showed this phenomenon apparently did not involve organisms that were resistant to antibiotics.

A low white blood cell count is also unusual in the presence of a meningitis caused by a pyogenic organism. This finding is further evidence of an altered relationship between the invading organism and the host.

As noted previously, this is apparently the first reported case, at least since 1911, in which Mycobacterium tuberculosis and a staphylococcus were isolated. Of the cases collected by Riley, all were tuberculous combined with some other organism. In twenty-three cases, the other infecting organism was the meningococcus; four were combined with the pneumococcus, two with Friedlander's bacillus, one with an unidentified organism growing in tetrads, and two with unidentified organisms. Several points worthy of repetition here are stressed in Riley's review. Since dual infection does not produce a distinctive clinical picture, the diagnosis of this condition can be made only by appropriate bacteriological methods. Failure of the patient to respond to currently available therapy of the suppurative meningitides may be an important clue suggesting the presence of two invading organisms. In the case reported here, lack of response was of little value in the light of the known high resistance of the organism to penicillin.

All cases reported, save that of Riley and the present case, were reported prior to 1944; i.e., before the time when streptomycin was freely available. Apparently there are no cases reported thus far in which therapy with streptomycin has been attempted. All cases have been fatal. It would seem that if the tubercle bacillus could be demonstrated microscopically in the spinal fluid of such cases, or if extremely suggestive clinical findings point to a dual infection, a course of both intrathecal and intramuscular streptomycin following accepted dosage schedules for tuberculous meningitis[2,3] might be indicated after appropriate cultures and animal inoculations for isolation of the tubercle bacillus have been obtained. Admittedly, the ultimate salvage rate in tuberculous meningitis alone is low, approximately 20 per cent,[1,3] but it would seem that this offers the sole hope of cure in these patients at present.

Summary

1. A case of meningitis with two infecting organisms has been reported. The patient had simultaneous infection with Mycobacterium

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CHILDHOOD MORTALITY FROM ACCIDENTS

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ACCIDENTS are the leading cause of death in children over one year of age. Between the ages of one and nineteen years, accidental fatalities in Minnesota during 1951 constituted 38.5 per cent of the 826 deaths in that age group (Fig. 1). Accidental deaths in this age group almost equalled the total of the deaths due to malignant neoplasms, congenital malformations, diseases of the central nervous system, pneumonia, influenza, poliomyelitis, heart disease, and rheumatic fever. Accidents were responsible for three times as many deaths (318) as were caused by all communicable diseases (106). As a matter of fact, accidents are the leading cause of death up to age thirty-five, beyond which heart disease, cancer, and intracranial vascular lesions, the degenerative diseases of old age, take the lead.

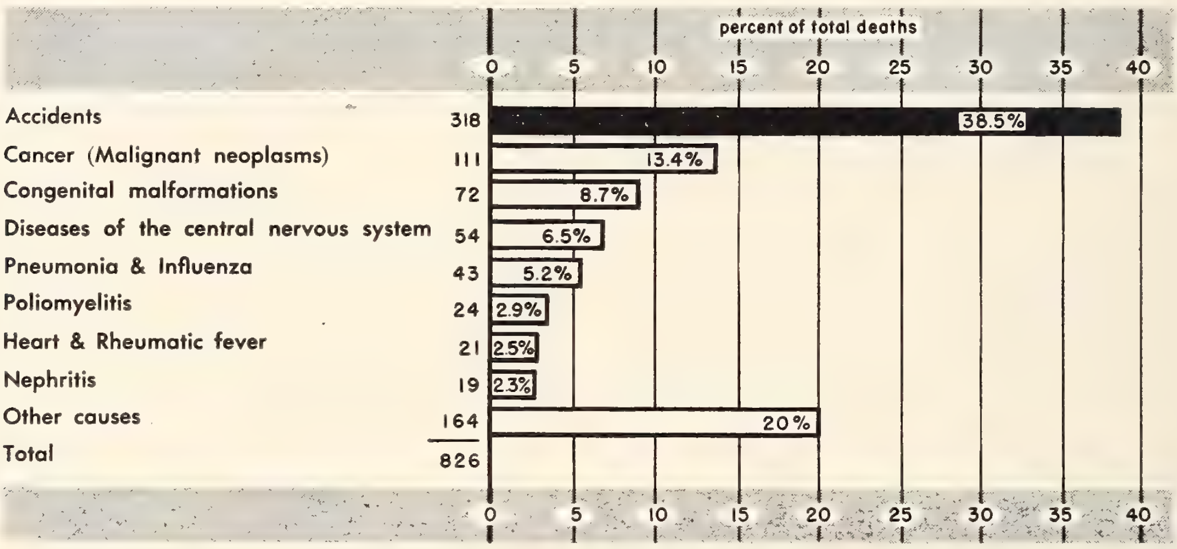

Fig. 1. Deaths from selected causes, ages one to nineteen years, by occurrence in Minnesota, 1951 (Provisional).

In 1900, tuberculosis was the leading cause of death in Minnesota and the United States. It was known as the "Captain of the Men of Death." Pneumonia took a high toll at all ages. Communicable diseases were responsible for a high mortality, particularly during childhood. Accidents were the fourth leading cause of death. Half a century later, in 1951, tuberculosis had dropped out of the ten leading causes of death in Minnesota. It has been in eleventh place for the past three years. Deaths due to pneumonia have decreased 75 per cent. Communicable diseases are rarely responsible for death during childhood. But accidents, the fourth leading cause of death in 1900, are today still in fourth place. Reduction of deaths from disease in recent years has been twice as great as reduction in deaths from accidents. As a result, accidents are now responsible for more deaths than any other cause in childhood, except during infancy.

TABLE I. SUMMARY OF ACCIDENTAL DEATHS OCCURRING IN MINNESOTA IN 1951
(Provisional)

Type of Accident	All Ages	Per Cent	0–19 Years	20–44 Years	45–64 Years	65 Years and Over
Grand Total	1,804	100.0	366	442	354	642
Occupational	171	9.5	12	64	66	29
Home	601	33.3	131	35	54	381
Motor Vehicle	653	36.2	131	247	155	120
Public	359	19.9	91	93	77	98
Late effects*	20	1.1	1	3	2	14

*Deaths due to accident but occurring more than one year after the accident.

Accidental Deaths in Minnesota

For all ages, a total of 1,804 accidental deaths occurred in Minnesota in 1951, an increase of 5 per cent over the 1950 total of 1,712 deaths.

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While the 1951 statistics are provisional, it is expected that the final figures will not cause any significant changes. The National Safety Council estimated a nationwide increase of 4 per cent for 1951.

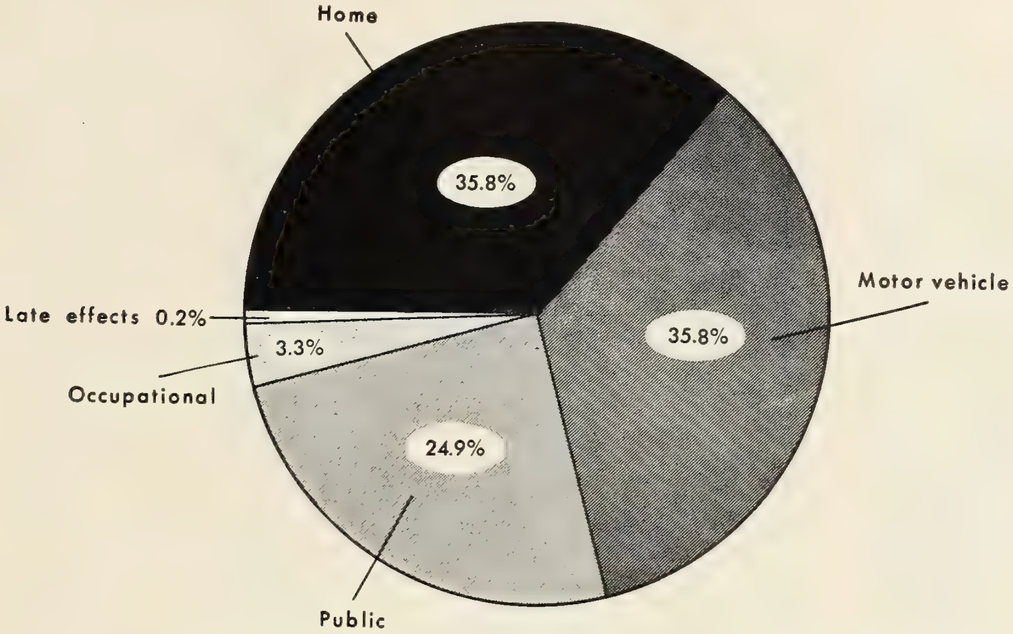

Fig. 2. Accidental deaths by major classification, by percentage during childhood (infancy to nineteen years), by occurrence in Minnesota, 1951 (Provisional).

TABLE II. PRINCIPAL CAUSES OF ACCIDENTAL DEATHS IN CHILDHOOD OCCURRING IN MINNESOTA, 1951
(Provisional)

Type of Accident	Total Under Age 20		Under One Year		1–4 Years		5–9 Years		10–14 Years		15–19 Years	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	366	100.0	48	100.0	96	100.0	65	100.0	62	100.0	95	100.0
Motor vehicle	131	35.8	5	10.4	32	33.4	28	43.0	17	27.4	49	51.6
Drowning	65	17.7	1	2.1	14	14.6	20	30.8	15	24.2	15	15.8
Burns	38	10.4	4	8.3	18	18.7	7	10.8	5	8.1	4	4.2
Firearms	19	5.2	—	—	2	2.1	4	6.2	5	8.1	8	8.4
Mechanical suffocation	19	5.2	17	35.4	1	1.0	—	—	1	1.6	—	—
Falls	16	4.4	5	10.4	5	5.2	2	3.1	4	6.5	—	—
Poisoning	15	4.1	3	6.3	8	8.3	—	—	1	1.6	3	3.1
Obstruction, suffocation, or puncture	12	3.3	9	18.8	3	3.1	—	—	—	—	—	—
Accident from machinery	10	2.7	—	—	—	—	—	—	3	4.8	7	7.4
Accident from electric current	4	1.1	—	—	—	—	—	—	2	3.2	2	2.1
Other	37	10.1	4	8.3	13	13.6	4	6.1	9	14.5	7	7.4

Home accidents constituted one-third of all accidental deaths (601 deaths), a decrease of 5 per cent from 1950 (Table I). Motor vehicle accidents caused slightly more than one-third of the deaths (36.2 per cent) and increased 3 per cent over 1950. Public accidents, other than motor vehicle, were responsible for one-fifth of the deaths, and occupational accidents caused one-tenth, an increase of 1 per cent over 1950. Twenty per cent of all accidental deaths occurred in persons under the age of twenty years, 24 per cent in those between twenty and forty-four years, 20 per cent between forty-five and sixty-four years, and 36 per cent in persons sixty-five and over.

Fatal Accidents During Childhood (0-19 Years)

Of the 366 accidental deaths during childhood (under age twenty), 131 (36 per cent) were home accidents, and a similar number were motor vehicle fatalities. Almost three-fourths of the accidental deaths in childhood were therefore due to home and motor vehicle accidents and one-fourth were due to public accidents (Fig. 2).

Turning to the principal causes of accidental death in childhood, motor vehicle accidents were in first place for the age group infancy to nineteen years, with 36 per cent of the deaths. Motor vehicle deaths exceeded all other types of accidents for the specific age groups one to four years, five to nine years, ten to fourteen years, and fifteen to nineteen years. The only exception was during infancy, under age one (Table II). Drownings were in second place with 18 per cent, burns in third place with 10 per cent, and firearm fatalities in fourth place with 5 per cent. In fifth place was mechanical suffocation; sixth, falls; seventh, poisoning; and eighth, obstruction, suffocation, or puncture by ingested objects.

There were definite sex differences, with 73 per cent of the accidental deaths occurring in males. Motor vehicle fatalities, drownings, burns, firearms and machinery accidents occurred preponderantly in males. These are shown graphically in Figure 3.

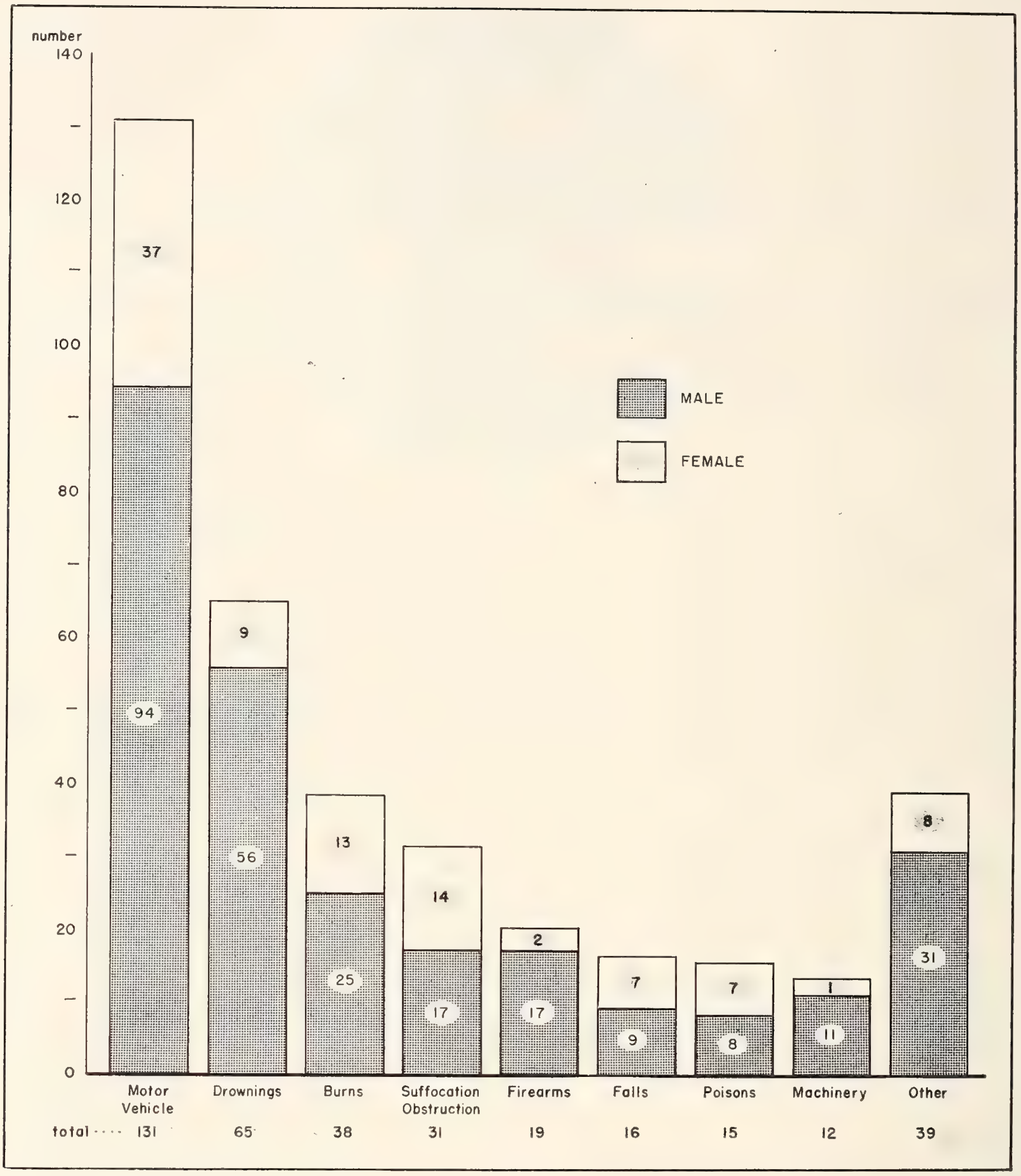

Fig. 3. Major causes of fatal accidents in childhood (infancy to nineteen years) by sex, by occurrence in Minnesota, 1951 (Provisional).

Fatal Accidents in Infancy

During infancy (the first year of life) there were forty-eight accidental deaths (Table II). While this number is small in comparison with the total number of infant deaths (1,918) and constituted only 2.5 per cent of the infant deaths, it is important to note that there has been a 60 per cent decrease in infant deaths from all causes since 1915, but only a 10 per cent decrease in deaths due to accidents. More than one-third of the accidental deaths in infants were due to mechanical suffocation in bed or cradle (Fig. 4). While fourteen of these deaths were coroner's cases, only one autopsy was reported. The total of seventeen such deaths is only one less than the number reported in 1950, in spite of continued emphasis that such deaths are for the most part actually the result of an acute respiratory infection and require adequate autopsies for diagnosis. Obstruction, suffocation, or puncture by inhaled or ingested objects were in second place, responsible for almost one-fifth of the deaths. Motor vehicle accidents and falls were each responsible for 10 per cent of the deaths, followed by burns and poisoning. One eleven-months-old infant ran into a river and was drowned.

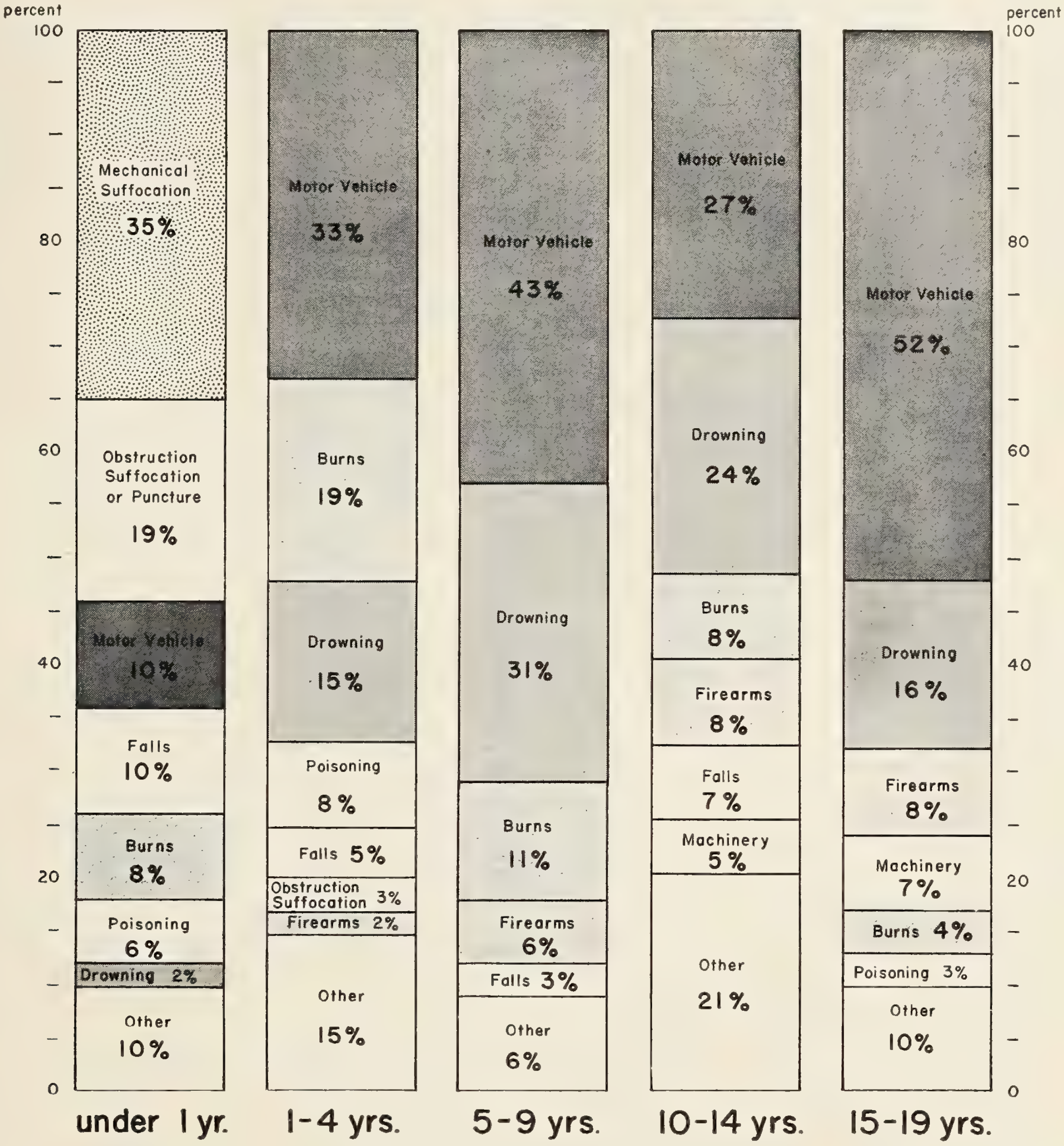

Fig. 4. Principal causes of fatal accidents in childhood. Per cent distribution for selected age groups, by occurrence in Minnesota, 1951 (Provisional).

Fatal Accidents in the Preschool Age Child

In 1951, for the preschool child (one to five years of age), accidental deaths constituted 30 per cent of all deaths, with a total of ninety-six such deaths (Table III). There were more deaths due to accidents than the total of all the deaths due to cancer, pneumonia, influenza, and all other communicable diseases. Almost twice as many deaths were due to accidents (ninety-six) as were due to pneumonia and influenza (twenty-five) and all other communicable diseases (twenty-five).

TABLE III. DEATHS FROM SELECTED CAUSES, AGES ONE TO FOUR YEARS, OCCURRING IN MINNESOTA 1951
(Provisional)

		Number	Per Cent
Total (all causes)		314	100.0
1. Accident fatalities		96	30.6
Motor vehicle		(32)	(10.2)
2. Congenital malformations		47	15.0
3. Cancer (malignant neoplasms)		44	14.0
4. Pneumonia—Influenza		25	8.0
5. Other communicable diseases		25	8.0
Meningococcal infections	8		(2.5)
Tuberculosis	7		(2.2)
Acute poliomyelitis	5		(1.6)
Measles	2		
Whooping cough	1		
Other	2		
6. Diseases of the central nervous system		22	7.0
All other causes		55	17.4

TABLE IV. DEATHS FROM SELECTED CAUSES, AGES FIVE TO NINE YEARS, OCCURRING IN MINNESOTA, 1951
(Provisional)

		Number	Per Cent
Total (all causes)		175	100.0
1. Accident fatalities		65	37.1
Motor vehicle		(28)	(16.0)
2. Cancer (malignant neoplasms)		30	17.2
3. Communicable diseases		27	15.4
Acute poliomyelitis	9		(5.1)
Pneumonia—Influenza	8		(4.6)
Tuberculosis	3		(1.7)
Diphtheria	1		
Measles	1		
Whooping cough	1		
Other	4		
4. Diseases of central nervous system		13	7.4
5. Congenital malformations		11	6.3
6. Nephritis		9	5.1
All other causes		20	11.5

TABLE V. DEATHS FROM SELECTED CAUSES, AGES TEN TO FOURTEEN YEARS, OCCURRING IN MINNESOTA, 1951
(Provisional)

		Number	Per Cent
Total (all causes)		140	100.0
1. Accident fatalities		62	44.3
Motor vehicle		(17)	(12.1)
2. Cancer (malignant neoplasms)		21	15.0
3. Communicable diseases		15	10.7
Pneumonia—Influenza	5		(3.6)
Acute poliomyelitis	3		(2.1)
Late effects of polio	3		(2.1)
Measles	1		
Tuberculosis	1		
Other	2		
4. Diseases of central nervous system		9	6.4
5. Heart and rheumatic fever		7	5.0
6. Congenital malformations		5	3.6
7. Nephritis		4	2.9
All other causes		17	12.1

Considering the principal causes of accidental deaths, there was a marked difference between the rank order for the preschool child and for the infant (Fig. 4). The first and second leading causes of accidental death in infancy—mechanical suffocation and obstruction or suffocation from ingested objects—almost disappeared in the older age group. The lead was taken by motor vehicle accidents which accounted for thirty-two deaths—one-third of the total (Table II). In second place were burns, with almost one-fifth of the deaths (eighteen). In third place was drowning, with 15 per cent (fourteen deaths), followed by poisoning with 8 per cent (eight deaths) and falls with 5 per cent (five deaths).

Fatal Accidents in the Younger School Age Child

In children between the ages of five and nine years, accidents accounted for sixty-five deaths (37 per cent of all the deaths) (Table IV). There were more accident fatalities than the total of all the deaths due to cancer, congenital malformations, poliomyelitis, pneumonia and influenza, tuberculosis, diphtheria, measles, and whooping cough. There were more than twice as many deaths caused by accidents as were caused by all communicable diseases.

As the leading cause of accidental death, motor vehicle accidents increased to 43 per cent (twenty-eight deaths) in the child from five to ten years old (Table II). Drowning was in second place, with more than one-fourth of the deaths (eighteen deaths). In third place were burns, responsible for 11 per cent (seven deaths), followed by fire arms with four deaths and falls with two deaths (Fig. 4).

Fatal Accidents in the Older School Age Child

Between the ages of ten and fourteen years, accidents were the leading cause of death, constituting 44 per cent of the deaths with sixty-two accidental deaths out of a total of 140 deaths (Table V). There were as many accidental fatalities as the total of the next seven leading causes of death, and four times as many as the deaths from all communicable diseases including pneumonia and influenza.

Considering the principal causes of fatal accidents, it can be seen from Table II that motor vehicle accidents continued in the first place in the older school child with more than one-fourth of the deaths (seventeen), closely followed by drownings with fifteen deaths. In descending order were burns with five deaths, firearms, five, and falls, four (Fig. 4).

TABLE VI. DEATHS FROM SELECTED CAUSES, AGES FIFTEEN TO NINETEEN YEARS, OCCURRING IN MINNESOTA, 1951
(Provisional)

		Number	Per Cent
Total (all causes)		197	100.0
1. Accident fatalities		95	48.2
Motor vehicle		(49)	(24.9)
2. Cancer (malignant neoplasms)		16	8.1
3. Heart and rheumatic fever		14	7.1
4. Communicable diseases		14	7.1
Pneumonia	5		(2.5)
Acute poliomyelitis	2		(1.0)
Tuberculosis	2		(1.0)
Other	5		
5. Diseases of central nervous system		10	5.1
6. Congenital malformations		9	4.6
7. Nephritis		6	3.0
8. Suicide		6	3.0
All other causes		27	13.8

Fatal Accidents During Adolescence

Between the ages of fifteen and nineteen years, ninety-five deaths or almost one-half of all the deaths were due to accidents (48 per cent). In contrast, deaths from cancer, rheumatic fever, heart disease, diseases of the central nervous system, congenital malformations, and all communicable diseases constituted only 30 per cent of the deaths in this age period (Table VI).

Motor vehicle accidents constituted more than one-half of all the accidental deaths between fifteen and nineteen years of age, a total of forty-nine deaths (51.6 per cent) (Table II). Drownings were in second place with fifteen deaths. Firearms rose in this age group to third place, with eight deaths, followed by deaths due to machinery with seven deaths, and burns with four (Fig. 4).

Summary

A total of 1,804 accidental deaths occurred in Minnesota in 1951. Twenty per cent of these fatalities occurred in persons under the age of twenty years. Between the ages of one and nineteen years, accidental deaths constituted 38.5 per cent of all the deaths in this age group and almost equalled the deaths due to cancer, congenital malformations, diseases of the central nervous system, pneumonia and influenza, poliomyelitis, heart diseases and rheumatic fever. Three-fourths of the accidental deaths occurred in males.

The leading cause of accidental death during childhood (infancy to nineteen years) was motor vehicle fatalities, responsible for 36 per cent of all accidental deaths. In second place, drownings were responsible for 18 per cent of the deaths. In third place were burns with 10 per cent. In fourth place were fatalities due to firearms. During infancy, under the age of one year, mechanical suffocation was the leading cause of accidental death, with obstruction, suffocation, or puncture due to ingested objects in second place.

The majority of deaths from accident are considered preventable and constitute a serious public health problem. Many of these deaths can be prevented by increased public attention to the problem, by education of parents regarding safety at home and at work, by proper education of children in safety by the home and the school, by close supervision of children at play, by sanitary engineering, by better control of water and traffic hazards, and by enforcement of necessary regulations.

MENINGITIS

(Continued from Page 423)

tuberculosis and a staphylococcus that showed high *in vitro* resistance to penicillin and streptomycin.

2. It is suggested that in meningeal infections from which a pyogenic organism is isolated, where initial spinal fluid cell counts are low, where a spinal fluid lymphocytosis is present, where the patient has a known tuberculous infection, or where response to therapy is poor, appropriate bacteriological procedures for the immediate demonstration and cultural isolation of tubercle bacilli from the spinal fluid should be undertaken.

3. The treatment of these cases with the currently accepted regime of streptomycin for tuberculous meningitis is suggested.

Bibliography

1. Bunn, Paul A.: One hundred cases of miliary and meningeal tuberculosis treated with streptomycin. Am. J. M. Sc., 216:286, 1948.
2. Bunn, Paul A.: Specific therapy for tuberculous meningitis. Am. Rev. Tuberc., 61:263, 1950.
3. Lincoln, Edith M. and Kirmse, Thomas W.: Streptomycin-promizole therapy of miliary and meningeal tuberculosis in children. Am. Rev. Tuberc., 61:159, 1950.
4. Riley, Edgar A.: Coexisting tuberculous and meningococcal meningitis. New England J. Med., 239: 386, 1949.

A TRANSFUSION PROGRAM FOR RURAL HOSPITALS

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EVERY LABORATORY worker can readily understand that in some respects laboratory problems in small outlying hospitals are much different from those in the larger urban hospitals. The lesser volume of laboratory work in the small hospital results in some procedures being done only occasionally with long lapses of time often occurring between tests. Therefore the technologists' experience with such procedures is necessarily limited. Pathologists and special laboratory workers are not immediately available and interpretation of laboratory findings and the resultant decisions as to therapy or procedure must be made by the attending physician without assistance.

These problems in laboratory work are particularly apparent on the transfusion services of small hospitals. Within the past ten years only, there has developed in this field a tremendous complexity of technical procedures. Former techniques employed in matching bloods for A-B-O and Rh compatabilities are no longer satisfactory. Furthermore, the technologist is expected to be conversant with sensitization phenomena and to be familiar with the methods of detecting such sensitizations. Cross-matching problems resulting from cold agglutinins, high serum viscosity, artifacts as well as from subgroup sensitization are often difficult even for the technologist working exclusively with transfusion problems. These difficulties are correspondingly greater in the small hospital laboratory.

Notwithstanding recent advancements in knowledge and improvement of laboratory methods, transfusion reactions occur too often. From our experience it appears that more deaths result from hemolytic transfusion reactions than from appendectomies. It has become clear, therefore, that in a transfusion service the long-felt need for safer transfusions can and should receive first consideration. To accomplish this in a small rural hospital, it is necessary for laboratory personnel to be given the opportunity to go periodically to some reliable center to receive refresher training in the newer methods of cross-matching and handling blood and to compare notes on procedures. The technologist should acquaint herself with the workers in this special field so that she can call, write or otherwise consult with them whenever difficult problems confront her. The technologist in the small hospital must in this way be provided with competent, expert help in the confusing situations which periodically confront every transfusion worker.

The next most important part of a transfusion program is procurement of blood for major emergencies. The two situations which make up the majority of these emergencies necessitating immediate use of large amounts of blood are obstetrical accidents and gastrointestinal hemorrhages. The following case illustrates the situation very well: Recently, in a Minneapolis hospital, a young mother underwent an apparently normal delivery. She was returned to her room at about 4 p.m. Hemorrhage developed, however, and the patient was given 17 pints of blood before midnight of that day. Unquestionably, this young woman would have died if that blood had not been continuously available. That type of emergency can arise at any time in any hospital irrespective of its size. Every reliable transfusion service must be capable of handling such emergencies.

It is basically unsound in Minnesota to attempt to supply from a distance the complete transfusion needs of a small rural hospital. In Minneapolis, blood is delivered from a certain bank to participating hospitals. The distance to any one of these hospitals is not more than five miles. Nevertheless, in order that blood can be delivered promptly in emergencies, it has been found necessary to equip the blood bank delivery truck with a telephone, red lights and a siren. The Minneapolis War Memorial Blood Bank would not undertake to cover emergency situations reliably in outlying hospitals even at distances no

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Although the Minneapolis War Memorial Blood Bank is the official blood bank of the Hennepin County Medical Society, its services have not been denied to physicians and medical groups in outlying towns and counties when specific requests for these services have been made through proper channels. This paper will be sent to physicians in rural towns as a reply to inquiries concerning supplementary blood bank service which the Minneapolis War Memorial Blood Bank can offer.

Mr. Matson is Director and Dr. Koucky is Medical Executive of the Minneapolis War Memorial Blood Bank.

farther than 20 to 30 miles. It was found, in fact, that last winter and spring during the period of heavy snows, there was difficulty in delivering blood for ordinary routine work. It is our opinion that reliable emergency coverage can be attained only if the outlying hospital organizes a program whereby blood for emergency can be immediately available from within the local community. Such programs must be accepted as a community need similar to volunteer fire departments. In implementing a rural emergency transfusion program, it must not be overlooked that quarters, equipment, supplies and above all, personnel experienced in drawing blood from donors must be in readiness at all times. The daily drawing of blood for routine use is the best assurance that the physical equipment and technical skill will be available when an emergency arises. The "know how" must remain with the hospital laboratory. Furthermore, the community should have available an adequate supply of plasma to supplement its emergency blood program. Physicians, firemen, highway patrols, sheriffs, ambulances, hospitals, and all key points should all be supplied with plasma. Every obstetrical delivery room should keep plasma within the room. Plasma should be stocked throughout the community so that it is immediately available to control emergency situations until whole blood can be used.

Procurement of blood for the ordinary routine transfusion needs is seldom a problem. In small communities there is a close association between the hospital, the physicians and the citizens which makes easy the procurement of blood. But it is somewhat difficult to know how much blood should be kept continuously on hand. There should be enough so that the ordinary minor emergencies due to an unexpected need for two or three units of blood can be handled by the bank without calling upon the community volunteers. Numerous public calls for blood for emergencies of minor degree may dull the community response and enthusiasm. Experience indicates that a hospital should maintain about one unit of blood for each five or six beds. This, of course, varies considerably with the type of medical practice in the particular hospital. It seems advisable that such an inventory should be uniformly maintained.

Since the use of blood is unpredictable, however, there could result a significant waste due to outdating. Any waste of blood is undesirable. To eliminate this waste, the small blood bank should arrange with an urban central bank for an outlet for units of blood which might otherwise become outdated.

Exchange of bloods between banks is not, however, a simple matter, particularly if the central bank is government licensed. In such blood banks the Department of Biologics Control of the National Institutes of Health rigidly regulates the movements of the blood bank's biologic products. It is important that procedures such as the selection of donors, the preparation of the skin, the type of equipment, the storage and handling of the blood all follow definitely prescribed standards. The central bank in order to accept units of blood must instruct, supervise, and control the techniques and personnel of the affiliating bank. Such instruction and supervision should be part of the plan even though it were not required by the NIH, since it is part of a general education program so much needed in transfusion work throughout the country.

Acceptable units of blood sent to the central blood bank are credited, unit for unit received, to the local bank. This credit is used to provide the plasma needed by the community. It can also be used to provide unusual or special bloods not available in the local bank. Finally, this credit is used to provide blood for members of the community requiring transfusions away from home. In Minnesota, patients are frequently referred by their physician to other institutions such as the University, Veterans Hospitals, or Twin City private hospitals, and to various clinics. The central blood bank acts as a clearing house and arranges for an exchange of credits. In this way it is possible for citizens of a community to donate blood in their own home town for relatives or friends hospitalized in these various institutions or even in hospitals as far away as Seattle, San Francisco or Miami.

The requirements of a sound, reliable transfusion program for small outlying hospitals can be summarized as follows:

1. Association with a large central blood bank to which the technologist can go to learn the newer approved technical procedures, and to which she can turn for help with her problems.
2. Organization of a local self-sufficient system whereby blood for emergency may be immediately available at all times.

3. A local supply of plasma available at all key points in the community.

4. A reasonable inventory of whole blood to cover daily uses and ordinary minor emergencies.

5. An outlet for units of blood which are becoming outdated.

6. A source for special blood not available in the local bank.

7. An affiliation with a central clearing house for blood, permitting exchange of credits between institutions.

8. An affiliation with a central blood bank laboratory offering consultancy assistance in the study and analysis of difficult transfusion problems, transfusion reactions, Rh antibody titrations, Coombs test, genetics studies, and other problems dealing with hereditary antigenic factors in human blood.

How can all of these requirements be satisfied within one program? We have been changing the details of our plan from time to time so it is obvious that a final perfect program has not been devised. We do feel, however, that our basic pattern is workable and useful.

It is our recommendation that the local physicians, the hospital and lay groups organize a campaign to acquaint the people of the community with the requirements of a reliable transfusion program and with the details of the proposed project. We suggest that leading civic groups take over this project and maintain it year after year under the supervision of the physicians. In some communities this civic group consists of a committee which has a representative from each of the various organizations of the community.

Volunteer blood donors to start and maintain a blood bank are solicited. These volunteers are of two types. Volunteers coming from farms and towns away from the location of the hospital make up one group. From this group, donors may be called at about 10-day intervals. Out of the entire group which sometimes numbers several hundred, only a few are drawn at a time—only enough to maintain the blood bank inventory at the desired daily level. Each person who deposits blood in the bank establishes a credit which entitles him and his dependents to receive blood as needed. Unused credits should be canceled at some predetermined interval, perhaps at two years, in order to facilitate bookkeeping and keep the bank solvent.

The second group of volunteers, those living in the town in which the hospital is located, are all typed, indexed and organized into an emergency group, members of which will immediately come to the hospital at any time when called. This group may also be called upon for nonemergency needs. Individuals having certain types of blood are called by the laboratory technologist as needed to maintain proper type distribution of blood in the bank. This second group of volunteers are all given credit in the blood bank as soon as the group is organized. They can then withdraw blood even though the individual member has not yet been called to make a deposit.

It has been found that the great majority of people in the community do not establish any credit in the bank. When persons from this group receive a blood transfusion a deposit of $35.00 must be made for each unit used, to encourage the patient to have his friends and relatives replace to the bank unit for unit the amount of blood which has been used. Failing to do this, the $35.00 is forfeited and goes into the blood bank fund. Irradiated liquid plasma used from the bank is replaced by blood in the same way.

In the case of rural hospital blood banks affiliated with the Minneapolis War Memorial Blood Bank, the technologist responsible for the management of the rural blood bank must come to the Minneapolis War Memorial Blood Bank and work with its personnel for not less than one week. It is required that she continue under the supervision of the central bank after she returns to the hospital blood bank and that she be placed on the payroll of the Minneapolis War Memorial Blood Bank to emphasize its control over her. Her salary from the central bank is, to say the least, not large. It is important that this technologist be kept informed of all new methods employed by the central bank, and it is especially desirable that she calls upon the central bank for help with any problems.

As units of blood in the rural hospital blood bank become seven to ten days old, they are sent to the Minneapolis War Memorial Blood Bank, while at the hospital replacements are made from either the volunteer group or from patients' relatives. The local blood bank is credited with all bloods arriving in good condition at the Minneapolis War Memorial Blood Bank.

Currently, an adequate reserve of plasma is on hand at the Minneapolis War Memorial Blood Bank to permit loaning to the local bank as many units of plasma as are needed—twenty to thirty is the usual number. This loan of plasma is paid off as time goes on from the whole bloods sent to the Minneapolis bank. It is customary to ask two units of blood for each 250 cc. unit of plasma—one unit to provide the plasma itself, and a second unit to cover the cost of processing, filtration and radiation.

The blood sent to the Minneapolis Bank also builds up the credit out of which can be provided blood at the various institutions to which patients might be referred. Blood can also be replaced at the Minneapolis War Memorial Blood Bank for that already used at other institutions. If blood is actually transported to these institutions, for example to the Mayo Clinic, a shipping charge is made to the patient receiving the blood. In all cases there is, of course, a service charge for the laboratory work done on these bloods. In the Twin City area the total charge covering both the Minneapolis Blood Bank's work and the Hospital laboratory work ranges from $12.00 to $16.00. The Minneapolis War Memorial Blood Bank's part of this fee is $6.00.

If the local technologist has difficulty in selecting a suitable blood for a transfusion, she may send a blood sample from the patient to the Minneapolis Bank for selection of a compatible blood from our larger stock. Such bloods also are provided from the hospital's credit at the central bank.

Unused credits at the Minneapolis War Memorial Blood Bank are canceled at the end of a year, but this is done at monthly intervals so that the hospital always has available the past twelve months of unused credits.

Unquestionably, this plan will require further modification. It is, however, already apparent that as our experience has increased, our ability to help other blood banks has improved. The program has been found to materially strengthen and support the laboratories and blood bank service of the affiliated rural hospitals, large or small. It is a plan which does not supplant but rather supplements the activity of the rural hospital blood bank and keeps the "know-how" of bleeding donors and other blood bank and laboratory procedures in the hospital. Yet, due to the backing which is offered by the central bank, by supplementing the hospital's own supply of blood in emergencies, by supplying rare types of blood when needed, by supplying selected blood for use in difficult transfusion problems, by giving laboratory assistance in the study and analysis of difficult transfusion problems, by laboratory assistance in case of transfusion reactions, by training laboratory personnel from rural hospitals in approved techniques of modern blood bank work, by extended supervision of blood bank techniques in rural hospitals, and by dissemination of scientific information to physicians, nurses, technologists, etc., by means of reprints, pamphlets and by direct correspondence, the physicians, hospitals and community enjoy a transfusion security and safety which is invaluable.

Based on our experience, we can say with confidence, even now, that this basic pattern is working and that it can ultimately develop into a dependable state-wide system of blood banking.

PSYCHIATRIC IMPLICATIONS OF THE ATOMIC AGE

(Continued from Page 408)

fense against the atomic bomb. It has come to be the accepted fact among people, that some day the atomic bomb is going to drop, and so a state of constant fear has been developed, together with a state of general insecurity and confusion and uncertainty, which, combined, have produced in a great many of our people a feeling of indifference. They have become resigned to the inevitable. They no longer can think for themselves in terms of the past when there was no such threat in existence. A spirit of "let's live while we can and get all we can out of it" has developed. People have become to be more or less fatalistic in their attitude. They have come to expect the inevitable and with a shrug of the shoulders they turn to today in order to live as best they can without plans for the future. This, then, is the psychiatric implication of the Atomic Age.

President's Letter

SELF DISCIPLINE—PUBLIC SERVICE

In fostering accessibility to medical care facilities, services and information, the medical profession has developed an all-important safety valve for doctor-public relationships: county medical society grievance committees.

There is much that the public does not understand about the principles and practice of medicine; and the tensions of illness often contribute to these misapprehensions. Unchecked, a single misunderstanding may grow and multiply into a full-scale community antagonism against the medical profession.

I use the word "misunderstanding" to describe the unpleasant situations that can arise between doctor and patient, because in all but a small percentage of cases, the physician's failure to serve his patient has not been a professional failure, but an omission in explanation, in providing the patient with a fundamental grasp of the factors involved in his condition, the procedures of treatment, and methods of financing medical or surgical care.

When the patient comes away from his doctor's office, bewildered, perhaps a little frightened by the unknowns of his ailment, and apprehensive regarding the financial aftermath, he is well on his way toward becoming a public relations problem.

Fortunately, most physicians have become actively aware of their responsibilities in health education and the number of misunderstandings between patients and physicians is dwindling, as a result. However, the grievance committee network throughout the county medical societies is an ever-ready safeguard against the consequences of neglected public relations problems.

The public is served by the profession's facilities for self-discipline in two ways: first, any real case of negligence or unethical conduct on the part of the physician is promptly dealt with by his medical society; and second, a clearer understanding of the medical principles involved is always achieved.

Self-discipline and a conscientious approach to the problems that concern both the profession and the public are noteworthy among American medicine's contributions to standards of American medical care.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

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PHYSICAL DIAGNOSIS—A LOST ART?

AUSTIN FLINT, in 1862, speaking of physical diagnosis, remarked that "so large a part of the profession bestow little or no attention on the subject." What would his impressions be if he were to return today?

The multiplicity of diagnostic aids available today has had the tendency to lessen the time and effort spent at the bedside, and many physicians are neglecting to obtain and apply all the information available from the simple methods of physical diagnosis. In fact, many doctors have not been adequately taught and have not troubled to perfect themselves in carrying out the physical examination. Too little time is allotted for the instruction of the undergraduate in the important field of physical exploration of the patient, and the tutelage is often relegated to the less experienced members of the staff. Later then, in the urgencies of practice the doctor is quite apt to gloss over or omit part of the examination, assuming that the x-ray or the laboratory will provide him with all the answers.

The physical methods of examination, inspection, palpation, percussion, and auscultation require no extraordinary acuity of the senses, but do require a knowledge of anatomy, physiology, and pathology, together with a good technique practiced with painstaking care. A systematic approach and thoroughness are requisite. A hurried, casual, or partial examination is almost no examination. Some teachers emphasize one of the methods particularly. Full use should be made of all.

"The trouble with most doctors isn't that they don't know enough as it is that they don't see enough."—Corrigan.

Diagnostic acumen often attributed to cleverness really consists of long and diligent experience in the exercise of observation. Many of the older clinicians testify to the value of inspection, and the keenness of their observations is reflected in the descriptions of what they saw. In the intervening years no one has improved upon the word picture of the irregular respiration as written by Dr. Cheyne and Dr. Stokes. Some of the world's great masterpieces in oil and sculpture depict readily recognizable medical conditions even though the artist may have been unaware of their significance. Palpation is of inestimable value in some situations. Percussion and auscultation may signify little or nothing if one listens but does not hear. In 1951, a great clinician felt impelled to publish a monograph on proper auscultation of the heart.

It is necessary to know, not only what the methods are capable of demonstrating, but also to know and recognize their limitations, and what should not be expected of them. Micrometer accuracy cannot be achieved with a yardstick, but properly used the yardstick may be a useful and valuable instrument. Often the student does not become fully aware of the fact that morbid physical signs are not directly diagnostic of particular disease, but are related to and significant of the physical conditions produced by the disease.

A pain in some general location of the body is often sufficient to occasion the reference to the roentgenologist, and the report then becomes a diagnosis with a minimum of cerebral or physical activity on the part of the clinician.

Such approach does not permit proper selection of the procedures required. Too much or too little is done. The thoughtless accumulation of tests (the exactness of which may be more apparent than real) does not actually constitute what is commonly referred to as a "work-up." In fact all too commonly only further confusion may result, and it is unfair to the roentgenologist and the pathologist, to ask or expect them to do the clinician's job.

It is only after a thorough clinical study that intelligent requests for special procedures can be made. Furthermore, proper correlation of the various studies can only be achieved in connection with the entire clinical picture.

"We do not lack in appreciation of the revolutionary discoveries of Laennec, nor do we regard his labors as in any way inferior to the chemical and physiological studies now being so assiduously pursued."—Hamman.

Mechanized diagnosis is leading to the loss of the charm and joy of approaching an individual rather than "a case." The senses are becoming impaired by disuse atrophy. The human side of medicine always has been, is now, and ever will be the prime consideration of the good physician.

Especially today with such widespread interest in the high cost of medical care, it is incumbent upon every practitioner to listen to the patient (he may be telling you the diagnosis), and carefully conduct a thorough physical examination.

Then care and some degree of wisdom may be used in selecting the necessary special studies requisite to the welfare of the patient. In this way, we can make further effort in the fulfillment of our obligations as physicians.

T.A.P.

NEW ANTI-TUBERCULOSIS DRUGS

THE STRIKING RESULTS obtained by the use of derivatives of isonicotinic acid in the treatment of clinical tuberculosis which was reported in the January, 1952 issue of the *Quarterly Bulletin of the Sea View Hospital* at Staten Island were not long in being brought to public notice. Three New York newspapers carried articles on February 21, and from there on the news spread like wildfire. The search for specific medication for diseases, including tuberculosis, has been going on for years. From time to time one is added to the medical armamentarium, and now it seems very likely that one has been found highly effective in the treatment of tuberculosis. While it is a little premature to give an accurate and final evaluation of the value of the new drug, enough patients have been treated successfully to warrant real optimism.

The drug known as isonicotinic acid hydrazide was first synthesized by two chemists in Austria in 1912. It was synthesized again independently by Dr. H. H. Fox of Hoffmann-LaRoche, Inc., Nutley, New Jersey, in 1942 and more recently by a team of chemists of E. R. Squibb and Sons, New Brunswick, New Jersey. Its chemotherapeutic activity was discovered independently by the research staffs of the two companies. Rimifon® was the name given the drug by Hoffmann-LaRoche and Nydrazid® by Squibb. Its isopropyl derivative is known as Marsilid®.

Both Rimifon® and Marsilid® were tested as to their anti-tuberculosis effectiveness against test tube cultures and by oral and subcutaneous administration to infected mice and monkeys. Their action seemed to be bactericidal rather than bacteriostatic. When they were found to be more effective than streptomycin, P-aminosalicyclic acid,- or any of the other tuberculostatic drugs they were tested out in small doses last summer on five severely ill tuberculous patients at Sea View Hospital. Beginning last fall, some ninety-two patients at Sea View Hospital were treated with larger doses, and it was originally planned to report the results of a six months' trial in April. The results were so startingly successful that the staff evidently could not refrain from making the preliminary reports in the hospital's *Quarterly Bulletin* for January. While some undesirable side effects, such as sore arms, vertigo, constipation and hyperreflexia were reported, there was no evidence of any organ damage and the effects on the tuberculous infection, both pulmonary and extrapulmonary, were so favorable and at times even dramatic that large supplies of the drugs have been made available and have been supplied to sanatoria all over the country for experimental use. The drug is not yet available for private use.

If widespread use confirms the preliminary reports, Rimifom® and Marsilid® will contribute a great adjunct in the treatment of a disease which still takes its toll of thousands yearly.

COMMISSION ON FINANCING OF HOSPITAL CARE

THE INVESTMENT in hospitals in this country amounts to billions of dollars and duplication of present facilities at present-day costs would require two or three times the original investment. The cost of hospital care is placed at several billion dollars yearly and has skyrocketed in recent years. The many factors including inflation, high wages, high taxes and fewer large donations have made the going rough for many hospitals. It is important that the necessary steps be taken to maintain the services of the hospitals within the reach of the general public directly or through insurance.

A commission of thirty-three members, each one chosen for the contribution he was considered able to make to the operation of the commission, has been established to investigate all phases of the hospital problem and is sponsored by the American Hospital Association. A fund of $500,000 has been created by the Health Information Foundation, Milbank Memorial Fund, National Foundation for Infantile Paralysis, Rockefeller Foundation, W. K. Kellogg Foundation and John Hancock Mutual Life Insurance Company to finance the study. Two years will be taken to complete the investigation.

The report of the Commission will be awaited by the public and the profession with interest. It is to be hoped that valuable recommendations will be made.

The following article by Dr. Howard A. Rusk, an associate editor of the *New York Times* and a member of the Commission, is informative.

HIGH QUALITY HOSPITAL CARE AT LEAST COST BEING SOUGHT

Citizens' Group Studies Institutions' Rising Expenses in New Service to Public

By Howard A. Rusk, M.D.

When the Pennsylvania Hospital was organized in 1751 through the efforts of Benjamin Franklin and Dr. Thomas Bond as the first voluntary hospital in the United States, its founders, as is done today, appealed to the public for funds. But, unlike today, the £2,750 raised were found to be more than were actually needed.

From this high point 200 years ago the situation of American hospitals has steadily grown worse until today most voluntary hospitals face severe financial problems.

In comparison to their modest beginnings, American hospitals have grown to be big business. Last year the 6,430 hospitals in the United States had a total valuation of $7,791,000,000; equal to $52 for each individual in the nation. The cost of care for the 17,023,513 patients they admitted to their 1,456,912 beds totaled $3,650,000,000.

As compared to $1.19 in 1900, the average daily cost for one patient in the nation's 4,713 general hospitals was $15.62 last year. This increase has resulted not only from the general increase in the price of all commodities, services and wages, but stems from the fact that hospitals today render services unheard of fifty years ago. This increased cost has been partly offset, for the individual patient's hospital stay has been materially reduced. In 1900 the average hospital stay was thirty-two days; in 1950 it was 8.1 days.

This fact, however, is academic to the individual who faces a large hospital bill. He is concerned that hospitals now take an increasing percentage of each dollar he spends for medical care. Last week's issue of *The Journal of the American Medical Association* reports that as compared to 14 cents in 1930 and 17 cents from 1935 to 1940, hospitals last year took 23 cents of each dollar spent for medical care. Of the $8,500,000,000 spent for medical care in 1950, $2,400,000,000 went to physicians, $2,000,000,000 to hospitals, $1,400,000,000 for drugs and sundries, and $1,000,000,000 to dentists.

Group Seeks Improvement

With these and other similarly disturbing facts to be faced, a citizens' committee of thirty leaders from all walks of American life, meeting in Washington recently, announced a two-year action program aimed at "providing high quality hospital care at the lowest possible cost to the public." The group, known as the Commission on Financing Hospital Care, is headed by Gordon Gray, president of the University of North Carolina and former Secretary of the Army. It is financed by grants from philanthropic foundations, voluntary agencies, businesses and individuals, and will report directly to the public.

The commission's first project will be a state-wide pilot study of hospital financing in North Carolina, starting in January. North Carolina was chosen for the study as the necessary information on costs is already available there. From previous studies done there the commission hopes to develop recommendations that will have nation-wide application in solving the problems connected with paying for hospital care.

In direct contrast to Europe, where most hospitals are owned and operated by governments with funds raised primarily by taxes, about 75 per cent of the income of the non-governmental hospitals in the United States is received from patients' fees. Although substantial funds are regularly contributed to non-profit, voluntary hospitals for new buildings, additions and repairs, few hospitals have endowment funds of significant size for operating expenses. In 1935 the endowment income of non-profit hospitals was a little less than 6 per cent of the total income.

Charitable giving to hospitals has not kept pace with rising hospital costs. Further complicating the problem is the fact that most local and state governments still pay far less than the actual hospital costs for services given medically indigent patients. For example, the cost of ward care in New York City voluntary hospitals is from $15 to $20 a day, but the city has only $11 for such care.

Private Patients Hardest Hit

As a result, private patients, particularly those who have not been covered by prepayment insurance, have been hardest hit as their personal resources have been easiest to tap. As these self-paying patients provide most of the operating income for the maintenance of voluntary hospitals, the ability of this class of patient to pay complete hospital charges undoubtedly will be a major consideration in the commission's studies.

Another factor the commission will consider is the effect of hospitalization insurance on hospital financing. It is estimated that at the end of last year 76,961,000 persons in this country had one or more insurance policies to defray the cost of hospital care in full or in part. In 1949 the insurance benefits of these policies amounted to $530,000,000 and paid for 26 per cent of all consumer expenditures for general hospital care. Of this amount, $303,000,000 in benefit payments were by hospital-sponsored Blue Cross, $192,000,000 by commercial companies, and $35,000,000 from independent plans.

There is little doubt that hospital care is an indispensable service that organized society must maintain. If the present system of financing and distributing health services in hospitals needs modification, the decision for change must be based on facts. Since little recently collected data is available for study, the new Commission on Financing of Hospital Care should provide a valuable service in determining how we may provide "high quality hospital care at the lowest cost to the public." The consumer will eagerly await the answer.—*New York Times,* December 9, 1951.

TODAY'S HEALTH

If *Today's Health* were to be found on the reception-room table of every doctor's office, it would mean that the reliable medical information which it contains would have a more widespread dissemination. If, too, *Today's Health* were recommended by each doctor to his patients, the value of this lay medical journal would be further enhanced. The increased subscription which would follow both these actions would eliminate the deficit occurring each year in its publication which is met by the publishers, the AMA, the physicians of the country. *Today's Health,* formerly *Hygeia,* is a valuable medium for transmitting reliable medical information to the public. It is our baby and should not be neglected.

AMA MEETING—JUNE 9-13

The proximity of Chicago as the place of meeting of the American Medical Association in June should appeal to members of the Minnesota State Medical Association. The JAMA of April 12, 1952 contains in detail the program for the meeting.

The progress of scientific medicine in recent years has been outstanding. In no field of medicine has progress been greater than in the field of therapeutics. A visitor to the AMA convention in June will have a mass of scientific material from which to choose, and he cannot fail to add interesting and valuable material to his fund of knowledge.

The scientific meetings will be held at Navy Pier for the most part. The House of Delegates will meet at the Palmer House. Members are welcome to attend the meetings of the House of Delegates and its reference committees and to learn how the affairs of the Association of which he is a member are conducted.

For the information of those who will remain at home, two television broadcasts of convention activities will be carried over the NBC television network and will be sponsored by Smith, Kline and French Laboratories in co-operation with the AMA. This is the first time such a broadcast will have been attempted.

AMERICAN HEARING SOCIETY

Founded in 1919 by the late Wendell C. Phillips, M.D., the American Hearing Society, 817 14th St. N.W., Washington, D. C., is a nonprofit, social service organization devoting its efforts to prevent deafness, conserve hearing and rehabilitate the hard of hearing. Affiliated with the Society are 115 chapters from Maine to California. A chapter offers some or all of the following services: lipreading instruction, hearing tests and hearing aid consultation, classes for preschool hard of hearing youngsters and their parents, speech correction, auditory training, employment guidance and recreational programs.

WHICH WAY AMERICA?

I am grateful for this opportunity to talk to you as a physician working for the present in political life.

Doctors today have to be political economists as well as diagnosticians. The practice of our profession has changed because of circumstances outside the medical profession. It becomes not only wise, it becomes imperative for us to pay a great deal more attention to government because government today reaches into everybody's life every hour of every day. Whether we will long have the chance to use with success and satisfaction the scientific knowledge and skills we have worked so long to acquire will be determined by how well we handle our political affairs.

What happens in the world depends more than anything else on what the United States of America does. Her economic strength and political influence are still so great, her productive capacity, her military capacity and her moral strength are still so great that which way the United States goes is likely to be decisive in determining which way the whole world goes. Which way the United States goes depends upon what philosophy of government we choose, and the kind of people we choose to carry out the basic tenets of that philosophy.

Nobody needs to be apologetic about talking politically today. Conceivably we could solve all our medical problems and have better care more adequately distributed; we could solve our housing and education problems, our old age security and labor-management problems, our highways and bridges and airport problems, and all the other things we are properly interested in and concerned with.

But unless we manage our political relations with the rest of the world better than we have—and unless we end too frequent and exhausting wars or mobilization for defense, none of those domestic gains can endure.

And unless we handle our political problems better here at home so that we have better government, there is no gain, medical, social, or otherwise that is long going to be worth much to anybody.

Political Responsibility of Physican-Citizens

So we have to approach our times not only as physicians but as citizens. What we know as medical people must and should influence our conduct, our attitudes, and our activities as citizens. And our obligations as citizens must influence our conduct as medical people.

It isn't because we are doctors that we oppose the quack socialistic medical programs proposed here and there. It is because as doctors we know what will happen to medical care under such systems. Doctors themselves would by and large be better off—as long as there was anybody left able to pay the bills. It's the public that would be worse off. I don't need to enlarge on that.

England tried to get security for her people by turning everything over to the government. They put so much on it that the government is now insecure. How

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Address delivered by Honorable Walter H. Judd, M.D., Minnesota Representative, before the Eighth Annual Conference Woman's Auxiliary to the American Medical Association, Chicago, Illinois, November 15, 1951.

much security do they have? None—unless we hold them up. The doctors opposed it, not because they were trying to get something for themselves, but because they saw what was going to happen to medical care in a country following that sort of idea.

Lewis Douglas, our ambassador to Great Britain said, "After watching the socialistic experiment in Britain, I concluded that only a rich country can afford socialism, and only the poor ones are foolish enough to adopt it."

That was a wise comment. The people didn't see what they were going to lose—the doctors did. That's why they had to oppose it. The people thought they were going to get more and better medical care for less. Doctors knew they would get less and poorer medical care for more. The doctors under that system were going to be so busy taking care of those who needed it least, or only thought they needed it, that they would be prevented from giving good care to those who needed it most. We warned the British about it the best we could, but they went through with it anyway. I hope we will learn from their sad experience, and not have to learn from our own.

Forefathers' Philosophy Built Most Productive Nation

May I examine for a moment the history of what has developed here in this country—not just where we are, but why.

Some 330 years ago, our forefathers came to this continent. What for? To get a government to provide for them? No. That's what they had where they came from. They came here to get a chance to try to provide for themselves.

As a result of that philosophy in their hearts and of their political concepts, they built a society which released as had never been done before in any time, in any place, the creative capacities that are in ordinary people everywhere. There took place here the greatest outburst of creative effort, imagination, energy, production and progress that the world has ever seen. It rushed ahead to the point where today the seven per cent of the people of the world who live in these United States have created as much wealth and have distributed it more widely than all the other ninety-three per cent put together.

Why did that happen? Because of some good fortune or chance? No.

Was it because we had superior ability as compared with the other ninety-three per cent? Of course not.

Was it because we had greater resources? No. Theirs in total are greater than ours.

The basic reason was an economic system based primarily on the right of the individual—and opportunity for him to get ahead. That's what young people especially want—a chance to get ahead.

What the world needs is not our wealth, but the secret of our wealth. Wealth comes from only one thing—production of goods and services. Therefore, what the rest of the world needs is the secret of our production. How can they get their own countries on a more productive basis? They have to discover and apply the political and economic philosophy which brought our forefathers here some 330 years ago.

Europe Needs U. S. Production System

Last summer in England an Englishman said, "We are always over there trying to get your goods. But it's not so much your goods we need; what we really need is your system. In Europe the system is to try to get rich by making as few things as possible at as high a price as possible. In America the system is to try to get rich by making as many things as possible at as low a price as possible."

The biggest problem of ECA today—the one thing it hasn't succeeded in getting over is that for them to take our goods which are the result of the productive process here, is not enough. They must be willing to adjust their thinking and adapt their economic and political systems to take also the secret of our production. They can produce the same as we can here, if they will change their concepts.

In essence, the struggle throughout the world today and in our own country is a struggle between two philosophies of government—between those who believe in government from above down and those who believe in government from the bottom up. Put another way: it's a struggle between those who put their primary faith and reliance in a few experts, supposed supermen government executives, and so forth, at the top; as against those who put their primary reliance and faith in the good sense and capabilities of ordinary people, if genuinely free.

Our people came here to get away from systems where one man ruled, or one party ruled, or one race ruled, or one class like the aristocracy ruled, or one particular sect ruled, and the final decision was in the hands of the few. They came here to build a system where the final decision would be in the hands of the many.

Another way to say it is that it is a struggle between the only two basic forms of government there have ever been—dictatorship and federation. I use those terms rather than totalitarianism and democracy, because the latter have been so abused that they no longer mean the same things to different people. A dictatorship exists when any man or group or bloc, even if it be a majority, imposes its will without any reservation of rights for the opposition, or the minority. A federation exists when people establish a mechanism whereby some group or party can come to power and govern; but certain rights are reserved for the opposition, including the right to try to become the governing group. One is based on compulsion, the other is voluntary. The people decide the manner in which they are to be governed and they, not the government, decide what powers it is to have.

The year 1776 was the birthday not only of the United States, but of political liberty throughout the world. Up to that time governments had controlled people. This was the first time people set up a constitution by which they could control government.

Do We Govern Ourselves?

A lot of people think that in our system people govern themselves. The President in his July Fourth speech said that we must demonstrate to the Soviet

Union and the world "that people can govern themselves." The fact is that people have never been able to govern themselves directly, and I don't think they can now. Our forefathers debated that system and rejected it. We don't govern ourselves. Rather, we choose the government, which means we choose the mechanism, and the people to operate it.

May I illustrate by a story. Upon going home after my first session in Congress, representatives of one of the big labor organizations called upon me. They were pretty rough and I saw that they had figured out how to give me the third degree. The first man said I was the tool of big business, the banks and corporations. Then he tossed the ball to the next fellow who took me over the coals for allegedly being in the pockets of some other evil group.

When they got through, the cleanup man said, "Mr. Congressman, we have made our views apparent to you. We have 8,000 members in our union here in Minnesota." He dangled them before me, you see. "Each member represents about four votes. That makes 30,000 votes, and elections in this district are determined by ten, twelve, or fourteen thousand majorities. We want to know whether from now on you are going to vote with labor."

I said, "I have never voted with labor and never will. I have never voted against labor, and never will. I vote for or against individual bills on the basis of whether they seem to me to be in the interest of the United States, because only if they are in the interest of the United States can they be in the interest of labor, agriculture, business, the medical profession, or any others in our population.

"This first man said I was in the pockets of big business. Now you ask me to get into the pockets of labor. No, thank you. I am not going to be in anyone's pocket. If I were the sort to get into your pockets, I'd get into the other fellow's pocket if he offered greater inducements. Why don't you want me to be what my title is—*United States* Representative—not just a delegate from the CIO, or the NAM, or the Farm Bureau, or the AMA?"

Balance of Power Is Essence of Government

Some people believe in dictatorship by medicine or agriculture or whatever group they belong to. That's the opposite of our form of government—which is a federation. According to our philosophy, the government's main function is to maintain a just order and a balance—a balance between the branches of government and between the various regions or blocs or interests in the country. That doesn't permit anybody to get everything he wants. But it maintains maximum opportunity and flexibility and equity. These are the heart of the productive process, the secret of our wealth and progress.

So we do not govern ourselves directly, but through representatives whom we choose. Some say to me, "Your mandate is to do so and so." I say, No, my mandate is to govern this country as wisely as I can for the next two years. At the end of the two years you can keep me on or replace me with another representative, depending on whether you think I have governed well or poorly.

It is my political faith that only as my contributions are in the best interests of the United States of America as a whole will they be in the best interest of any group in the country.

Political Evaluation of Medical System

The main thing we need to study is not what happened here, but why it happened. It's like the old philosophical problem of the glass of water that is three-fourths filled. Roughly, three-fourths of the people in the United States have better medical care than anywhere else in the world. The average is higher than elsewhere, but there are some below the average. It is less than twenty-five per cent and it may be because they prefer to spend their money for liquor or some fad or quack remedy that they don't have good medical care. But we'll say there are twenty-five per cent.

We medical people tend to concentrate on the fact that seventy-five per cent of the people have good care. The professional reformers concentrate on the fact that twenty-five per cent don't receive the right kind or grade of medical care. The reformer would say of the glass, "It's no good, because it isn't full." He would throw out the three-fourths and start with nothing! We're inclined to say that the system is all right because the glass isn't empty.

But where we ought to be is between those two—neither the radical who would destroy what we have because it isn't perfect; nor the reactionary who says it's good enough because it's better than anybody else has. What we ought to be, as our forefathers were, is progressive conservatives.

Conserve the things that enabled us to get that seventy-five per cent. Hang on to the secret of that, but at the same time, progress so as to expand the good to eighty-five per cent, then ninety-five per cent, and so on. If we don't, the radicals will come in and take over. This is true of medicine or anything else.

Patient Loses Under Socialized Medicine

In medicine, we know what some of the secrets of success are that must be conserved. One of them is the completely voluntary relationship between the doctor and the patient. It's got to be completely voluntary on the part of the doctor or his heart isn't in it, and it's got to be wholly voluntary on the part of the patient or she isn't going to have confidence in the doctor. When the government is in between it can't be voluntary.

Again, there must be no intermediary. When the patient pays the doctor, the doctor works for the patient. Whenever under other systems the doctor gets paid in part or whole by the government, then little by little he comes to work for the government instead of for the patient. The doctor may be better off, but the patient is worse off.

A third value we must conserve is the incentives which our system provides for the doctor to do his best work and constantly to improve himself. One of these incentives is the chance to make a better living and get ahead financially. If you kill that by regimentation of doctors or patients, most men aren't going to do their best, or work their hardest to improve themselves. Another is professional recognition—the chance to advance to higher standing, to win the respect of one's colleagues and the people of the community. That is a powerful incentive. You kill that under a governmental system where promotions are made by order of seniority —or senility, as we call it in Washington.

What is necessary to get ahead under the bureaucratic system? Only two things. One, or course, is to live long enough so you will be eligible for promotion on the seniority basis. The other is not to have any new ideas. You can't get ahead if you have ideas. If you have a good idea, it makes your superior mad at you— why didn't he think of it first? He'll put you in your place. If you have a bad idea, that reflects on him for having such a dumbbell as a subordinate, and he will block the promotion. So don't try anything new—just conform. That's fatal in our profession, as in anything else.

Do you suppose a government agency would have picked out a half-illiterate garage mechanic to set the world on wheels? Yet that's how it happened. Not because Henry Ford was the only person in the world with the idea, but because of the fortunate circumstance that he lived under an economic and political system which gave him the right to try out whatever dream he had as long as he didn't encroach on the right of others to do the same thing.

Do you suppose a government agency would have picked out a half-deaf telegrapher to light the world? Yet that is how it happened—because of the philosophy in this government and its policies which not only made it possible, but encouraged it and rewarded it.

What Are the Functions of Good Government?

Some social workers because of their preoccupation with those who are inadequate or unfortunate—and that problem exists—become so concerned about saving the unfortunate that they think these are the major concern of a good society. They forget that the key thing is not handouts for the relatively few unfortunates, but providing opportunities for the many to become solvent, because only as the many can become solvent will there be anything much for the unfortunate.

A good government must provide basic minimum needs, food, medical care, clothing and housing for those who for whatever reason cannot provide for themselves. That's one of its functions, but not its first function. Its first function is to provide opportunity for those who, given opportunity, can provide for themselves in order for society to progress and build up something for those who can't provide adequately for themselves. Polio, blindness, injury in war, or some great shock may make it impossible for individuals to take care of themselves. Those are the casualties and government must take good care of them. But that's not its primary function.

The philosophy of our forefathers was the philosophy of the umpire—maintain equal rules for both sides. But it's not the umpire's job to play on one team or the other—or to make sure his favorite wins. It's the job of the boys who play the game. It's the umpire's job to make sure that each side has opportunity to do its utmost as long as it doesn't block the other side's chance to do the same.

In short, our forefathers were politically-minded; they were citizens before lawyers, doctors, farmers, or whatever. They recognized what we have so often forgotten, that we are first of all citizens, taxpayers, fathers and mothers, and trustees of a magnificent heritage.

You remember what our forefathers wrote down as the objectives of their government. First, to protect life. Second, to protect liberty—which means liberty to do anything within the law, no matter how foolish it may seem to others. Nobody is wise or good enough to run other people's lives, no matter how intelligent or high-minded he may be. Life, liberty—and this next one which a lot of people misinterpret as meaning that the government is supposed to guarantee happiness. They aren't able to get happiness and so they demand of their Congressman, "Give me happiness."

But that is not what the Declaration of Independence says. What it says is that men are endowed with certain inalienable rights—that is, they can't be separated from you. And governments are organized among men with the consent of the governed—that is, from the bottom up—to protect these inalienable rights, and among them are "life, liberty, and the pursuit of happiness." Whether you get it or not, the government can't guarantee. You can't guarantee that for your own child. The best you can do is perhaps to advise and stimulate him, try to influence him but he has got to make the decisions himself—either toward or away from happiness. That's all a government can do, too—except to help with the wreckage when, exercising his right to free choice, he loafs or deserts his family, or wastes his substance in riotous living.

I can work my little girl's arithmetic problems for her better than she can for herself. Sometimes I'm tempted to do that because it would be easier to work them than to try to explain them. Besides, she'd like to have me do them—she'd even vote for me if I'd do it. But I don't. It isn't because I don't love her or don't want her to get ahead—it is because I do.

Destructive Influence of Too Much Government

I think it can be stated as a law that whenever a government (or a parent) does for its citizens (or the children) that which they have the capacity to do for themselves, it begins to destroy both the capacity and the will to grow and develop, certainly the incentive.

Woodrow Wilson was a genuine political philosopher and a great student of government. In a speech in New York in 1912 he said that the history of man's struggle for liberty is the history of his struggle to hold down the powers of government. On every occasion citizens must resist expansion of the powers of government. It's an astonishing thing that so many of those who call themselves the followers of Jefferson, Jackson, Cleveland and Wilson, are now insisting that the way to increase liberty is on every occasion to expand the powers of government.

I hear my youngsters talking about their so-called social studies when they come home from high school. The other day I heard them talking about the Bill of Rights. They in company with apparently most people in America have been led to think that the Bill of

Rights, the first ten amendments of the Constitution, consists of a list of things that our government is obligated to do for the citizen. Please read them again. You will find that not one of them is a guarantee that our government must do this or that for the citizen. Every last one of them is a guarantee that our government cannot do this or that to the citizen. That's what "rights" are—what a government cannot do.

They are not guarantees by our government. They are guarantees against our government. For example, the government cannot pass a law establishing a religion, no matter how big a majority it has in Congress. It cannot interfere with your right to speak or publish or assemble or petition. It cannot quarter troops in your home in time of peace. And so on. The government cannot—cannot—cannot. That's what rights are; so that you can do them for yourselves.

It is the particular duty of the legislative branch—every member chosen directly by the people—to hold down the ever-expanding executive branch. Some say the legislative branch is a branch of the government. I think it's truer to say it is, or should be, the branch that is against the government.

In Washington when you call any of the executive departments on the phone the operators say "Government"—and they are right.

Dangerous Emergency of Bureaucratic Law

At the federal level there are 533 officials elected by and therefore responsible to the people; 435 are in the House of Representatives and 96 are in the Senate. That's 531. The other two are the President and the Vice President. The Vice President doesn't count unless the President dies; so you have only one in the Executive Branch elected by the people out of the thousands there who try to run your lives.

The people choose those in the legislative branch, and can unchoose them, on the basis of what they know about them. And they know what they are voting for or against. The people in my district know all about me. They know my education, by background, whether I pay my debts, whether my family is honorable; they know my views and they vote for or against me on the basis of a known quantity.

But did you ever vote for Alger Hiss? No. In fact, did you ever hear of him until he was disclosed as one of the greatest traitors of all times? No man in the legislative branch had as much to do with the foreign policies which lost one war and now have us in another.

Did you ever hear of Klaus Fuchs until you found he had turned the secret of the atomic bomb over to the enemy? You didn't know Hiss' or Fuchs' views or training or attitudes. And of the estimated 200,000 people in the Executive Branch who have power to make policies, only ONE of them ever submitted his credentials to you—the President. He can't possibly know individually more than perhaps 2,000 of those 200,000. To whom are the rest responsible? Well, they were not elected by the people, so they don't feel responsible to the people. They are appointed by appointees who were appointed by appointees, who were in turn appointed by appointees. You have no control or even knowledge of them. That's why the legislative branch, every member of which is responsible to you, has to be against the government, everlastingly seeking to hold down its power.

My friends, this is more fundamental and important to you and your families than talking about the price of your husbands' out-calls. Every bit of the training that your husbands have worked so many years to get and their chance to use their brilliant skill and training, depends on how well they and you and I handle our politics, for politics determines government.

I haven't even gotten to foreign affairs and there isn't time now, but it is the same sort of problem there. Too many decisions were made secretly by a few at the top —decisions which the many would never have approved, and which events have proved disastrous. In World War I, I left college as a pre-medic student and went into the field artillery. When we came back, I thought we had done our job. I took off my uniform and went back to school to get my medical education. It never occurred to me that I had just as great a responsibility as a civilian to build a good society here and a just order in the world as I had had the duty as a loyal American to help overthrow the system the Kaiser was trying to impose.

It wasn't those who died and today sleep in Flanders Field who failed. They did their part of the job. It was we who came home who failed. We didn't fail as soldiers, but as citizens.

However little excuse there was for the failure to get a good peace after World War I, there was no excuse for failure after World War II. Some of us cried our hearts out against making deals with the Kremlin at the expense of loyal allies, such as Poland and China. But we didn't have a chance. Even before the war had been won, the victory had been given away in five conferences by decisions that you and I didn't know about until years later. At Casablanca, Quebec, Teheran, Yalta and Potsdam, a few men on our side, with the finest intentions, but assuming powers no men should have in our form of government, were victims of the guile and the diabolic skill of those on the other side who weren't trying to build the kind of world we were interested in. Now our young men pay in blood and all pay in taxes for their errors in judgment.

Don't Underestimate Strength of Our Philosophy

There are really only two things for us to be afraid of: one is that we may fail to understand or may underestimate the enemy—its worldwide strength, its determination to win, the dangerous inroads which the cancer has already made into the vitals of our own nation and into the thinking of our people without their realizing it. The other is that we may fail to understand or may underestimate ourselves—the strength of our own philosophy and faith.

We can defeat the Russian arms by force of superior arms, but we can't overcome their faith except by a better faith more earnestly and devotedly believed in. Don't underestimate the enemy, but don't underestimate our own strength and the basic soundness of our system, and its attraction and appeal to the oppressed millions of the world.

Communism has never yet helped people out of poverty—never once. It is a fake and a fraud. Our essential system based on the right of the individual to get ahead, is the only one under which any people as a whole has been able to rise to higher standards. Why should we be ashamed—why should we be apologetic—why is it that we are hesitant in presenting to a confused world the only concept, the only system which gives them hope? But our economic system came out of a political philosophy—the right of the individual to do whatever he wanted to as long as he did not interfere with the rights of others to do the same.

Religious Faith is Root of American System

So our progress came from an economic system; that system grew out of a political philosophy. But where did that political philosophy come from? It came from a religious faith—which put first the dignity and worth of individual man as a spiritual being—because he is a son of God.

This is the secret of our progress. We take the progress so for granted that we forget its true source. We have lived so long with these values, which are really the result of centuries of conditioning by the teaching and concepts and principles of the Judeo-Christian religious faith, that we tend to think they are human values, that we possess them because we are human beings and that therefore all human beings accept them, too. Since Stalin and his henchmen are human, then they will respond to given situations as do we. No indeed. Their cruelties are not because they are inhuman, but because they are merely human. Men who haven't been conditioned or mellowed or had their characters developed according to moral teachings are like other animals, predatory. We have no right to equate human with Christian.

Most of us in America seem preoccupied with trying to preserve the material results—which came from the Judeo-Christian concept of the nature of man. But a more fundamental thing is to pay attention to the spiritual causes. We must revitalize and strengthen the spiritual roots out of which came the good fruits.

You say, "What can I do?" You can do what Thomas Jefferson did. You have the same opportunity that Alexander Hamilton had, that Adolph Hitler had. Hitler's was a false and distorted idea, but he did have an idea and passionate dedication to it—look at the evil he produced.

Political Participation—Your Duty

You and I have got to do the same thing with the truth. A Chinese saying describes it: One spreads to ten—ten spreads to a hundred. That is the only way any movement ever won.

All this means you have to get into political parties in order to expand your influence on political affairs. Join up with the party that you think is nearest right on the most important issues. You won't agree with it on everything, any more than you agree on every issue with your club, or your church, or even your husband. But you don't pull out of your club and throw brickbats at it. Rather you try to move it in the direction you think is right. Just so, join up with the party you feel closest to and work in it to select good candidates. That is the first step. The second is to elect them. To do that you have to vote for them yourself. And then persuade others to vote for them. And work to get the lazy or the immobile to the polls.

All good people work for the Red Cross, and Defense Bonds and Civil Defense and the Community Chest—that's "the thing" to do. Why isn't it "the thing" for good people to work in politics when politics is going to determine whether they are going to be able to retain or are going to lose every one of the things you and I believe in and stand for?

In addition, more of you have to be willing to be candidates yourselves and to let your husbands be candidates for public office.

That's tough, I can testify, but no tougher than being a soldier. Why do we expect the latter of good patriotic citizens and not the former? If you don't like your congressman, or mayor, or councilman, don't just write to him—run for the office.

True patriotism and good sense require that the highest grades of people be willing to sacrifice their careers to go into public service just as your sons are called upon to sacrifice their careers to go into the Armed Services.

The Best Thing About America . . .

Only when we do these things—not just discuss them, but act—will there be hope. The greatest and most wonderful thing about our country, which we must preserve at all costs, is the opportunity to change the things that we don't like. Thank God our system is such that if conditions are bad, or don't meet our standards, we can correct them—if we will work in politics. The way to begin is with ideas and principles, get persons and parties committed to them, and then translate them into programs.

EDITOR'S NOTE: The above address was most enthusiastically received by the members of the Woman's Auxiliary to the American Medical Association assembled. In spite of the fact that copies of the address were sent to Auxiliary members, the address is being republished in MINNESOTA MEDICINE for the benefit of our readers.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

EWING PROPOSAL UNDER NEW GUISE

Consistency is an easy sacrifice to opportunism for Oscar Ewing, it would seem. His most recent about-face occurred before a hearing of the House Expenditures sub-committee which is studying a bill to create a new department of health. Ewing, who has long been ardently in favor of socialistic government compulsory health insurance, and is still all for it, has now stated that he is not in favor of it.

How does such a thing come about? Mr. Ewing is merely making his proposal for elevating the Federal Security Administrator (himself) to cabinet rank "more attractive." He is not in favor of creating a Department of Health. Ewing testified at this hearing: "The soundest and only feasible way to achieve departmental status for the health functions of the Public Health Service is by elevation of the Federal Security Agency, with all the functions for which it is now responsible, to the status of an executive department." But, after hearing a suggestion of Senator Underwood of Kentucky that Mr. Ewing's proposal could be made more attractive if the Government were to announce "complete disavowal of any aims that lead toward socialized medicine," Mr. Ewing did just that. Apparently, he still does not believe that the Government's compulsory health insurance program would be one that leads toward socialized medicine.

IOWA RESIDENTS OPPOSE SOCIALIZED MEDICINE

No doubt Mr. Ewing would think again about his stand if he took seriously the vigorous opposition in the country to any form of socialistic medicine. A recent report from a congressional district in Iowa shows that 91 per cent of the residents are opposed to socialized medicine. A survey was taken of 39,800 persons, and returns were received from 3,870 of them—normal returns expected from such a questionnaire sampling. The survey was taken in the district of Rep. Thomas E. Martin and shows that "every occupational group included in the survey was overwhelmingly opposed to socialized medicine. Opposition to the idea was voiced by 96.6 per cent of the businessmen, 86 per cent of the laborers, 93 per cent of the white collar workers, 91 per cent of the professionals, 94.8 per cent of the farmers and 90.2 per cent of the remainder. . . ."

MEDICAL EDUCATION UNDERGOES EXPANSION

"The greatest expansion program in the history of medical education, to cost $250,000,000, is now under way in this country," states a recent issue of the *New York Times*. "Almost every college of medicine in the United States is planning to increase its physical facilities."

The *New York Times* recently conducted a survey on medical education through questionnaires sent to the eighty medical colleges and the forty-eight state commissioners of education throughout the nation. The survey states:

> "New laboratories, additional classrooms, modern dormitories and special research clinics are on the drawing board or actually under construction. At present the country maintains seventy-three four-year institutions of medicine, and seven two-year colleges. Commissions or fact-finding committees have been set up in at least ten states to map plans for the development of new medical colleges. Some of the existing two-year schools will be expanded into regular four-year, degree-granting colleges of medicine."

Enrollment Swells

Enrollment figures for medical schools have been increasing steadily. The *New York Times'* survey states, "In the current academic year—1951-52—the medical colleges admitted the largest freshman classes in recent history, a total of 7,381 students. The total enrollment has been growing steadily since the end of World War II.

Now it is slightly above 26,000, compared with 23,000 five years ago."

The survey also reports that a record expansion program is well under way in many medical colleges in the country, with nearly half of the schools now engaged in fund-raising campaigns. To offset the financial problems that are troubling the medical colleges, they are seeking from both public sources and private individuals or foundations approximately $200,000,000. The *Times* reports:

> "Eighty-four per cent of the medical schools reported that they were planning to use this money to expand their physical facilities . . . the medical colleges will spend, within the next few years, $50,000,000 for laboratories, $30,000,000 for classrooms and $20,000,000 for dormitories. Another $100,000,000 is earmarked for research and special projects. In addition, the immediate cost for establishing new medical institutions will run above $50,000,000, making an over-all expansion program of a quarter of a billion dollars. . . .
>
> "To meet the increasing demands for more physicians and medically trained men, at least ten states have taken steps to build new medical schools or expand their two-year basic science schools into four-year institutions . . ."

Quality Jeopardized?

A warning was sounded by certain medical deans, who were queried, that increased enrollment in medical colleges to the point of overcrowding would jeopardize the present high medical standards. One dean warned that "classes of more than 100 may weaken the present high medical standards. Rather than greatly increase the enrollment of existing schools, additional ones should be established. . . ." He explained further:

> "One of the present threats to the quality of medical education stems from the fact that members of state legislatures do not understand this point. There have been several instances in the last few years in which the state government has ordered the medical school of the state university to increase its enrollment without providing additional facilities and budget."

Many medical authorities reported that they felt that the existing enrollment can be increased without lowering the quality, if sufficient funds are obtained to add to the physical plant and increase the faculty. The *Times'* survey also reported that all those who were questioned urged that the high standards in medical education be safeguarded.

OPPOSITION STILL CRIES FOR ACTION

Adding to this vast expansion program for the nation's medical colleges is the National Fund for Medical Education which was originated and fostered by the medical men of the country—the American Medical Association. But amidst all this activity to increase the number of physicians to serve the people, comes a demand that the doctors do something to "provide adequate medical care."

In an article published by *America,* a national Catholic weekly magazine, Stephen P. Ryan reported that a recent conference of Southern Catholic leaders reached its most complete agreement in an "angry demand that medical men take some action or let the Government take it for them." The group also agreed that "medical fees . . . are too high, and there were many references to the failure of physicians to provide adequate medical care at a reasonable cost for the middle-class population of the United States."

The positive actions embodied in these activities of expansion and financial support for medical colleges speak for themselves in answering the negative attitude of the groups decrying the do-nothingness of medical men.

WALTER JUDD DESCRIBES DOCTOR-CITIZEN DUTIES

"Doctors today have to be political economists as well as diagnosticians," Dr. Walter Judd told members of the Woman's Auxiliary to the American Medical Association recently. "The practice of our profession has changed because of circumstances outside the medical profession," he continued. "It becomes not only wise, it becomes imperative for us to pay a great deal more attention to government because government today reaches into everybody's life every hour of every day."

He stated:

> "So we have to approach our times not only as physicians but as citizens. What we know as medical people must and should influence our conduct, our attitudes, and our activities as citizens. And our obligations as citizens must influence our conduct as medical people.
>
> "It isn't because we are doctors that we oppose the quack socialistic medical programs proposed here and there. It is because as doctors we know what will happen to medical care under such systems. . . . It's the public that would be worse off. . . ."

Quotes British Ambassador

Dr. Judd said that England tried to get security for her people by turning everything over to the government, and continued: "They put so much on it that the government is now insecure.

How much security do they have? None—unless we hold them up. The doctors opposed it, not because they were trying to get something for themselves, but because they saw what was going to happen to medical care in a country following that sort of idea."

Congressman Judd quoted our ambassador to Great Britain, Lewis Douglas: "After watching the socialistic experiment in Britain, I concluded that only a rich country can afford socialism, and only the poor ones are foolish enough to adopt it."

Forges Positive Philosophy

Urging his listeners to have faith in the American system of governing and not to underestimate the strength of our philosophy, Dr. Judd warned: "There are really only two things for us to be afraid of: one is that we may fail to understand or may underestimate the enemy—its worldwide strength, its determination to win, the dangerous inroads which the cancer has already made into the vitals of our own nation and into the thinking of our people without their realizing it. The other is that we may fail to understand or may underestimate ourselves—the strength of our own philosophy and faith."

Only by putting forth a better faith and working for it more earnestly and devotedly, he continued, can we hope to overcome our enemy and his faith. In conclusion, Dr. Judd observed:

> "Communism has never yet helped people out of poverty—never once. It is a fake and a fraud. Our essential system based on the right of the individual to get ahead, is the only one under which any people as a whole has been able to rise to higher standards. Why should we be ashamed—why should we be apologetic—why is it that we are hesitant in presenting to a confused world the only concept, the only system which gives them hope? . . . Our economic system came out of a political philosophy—the right of the individual to do whatever he wanted to as long as he did not interfere with the right of others to do the same."

Note: The full text of Dr. Judd's address appears on page 438.

GROWING SOCIALISM?

If it is reasonable for the government to provide "insurance" coverage for all citizens—not on a subsistence basis but at a fairly high standard of living—then why shouldn't the government also have the obligation to build automobiles at subsidized prices for all citizens? In fact, why should it not go into the business of supplying everything that the public uses, with the possible exception of the more frivolous types of products and services, if this principle is sound?—Insurance Economics Surveys, February, 1952.

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

MINNESOTA LICENSE OF WHITE BEAR LAKE PHYSICIAN REVOKED

In the Matter of the Revocation of the License of Keith D. Larson, M.D.

On February 16, 1952, the Minnesota State Board of Medical Examiners revoked the medical license held by Dr. Keith D. Larson, White Bear Lake, Minnesota. Dr. Larson was first cited on April 26, 1950, to show cause why his license should not be revoked because of immoral, dishonorable and unprofessional conduct as defined by law and as specified in the citation. Dr. Larson was specifically charged with having habitually indulged in the use of drugs and with having purchased excessive amounts of various derivatives of opium. Dr. Larson was also charged with diverting a portion of such narotic drugs to his own use, and with having issued fraudulent prescriptions calling for various derivatives of opium, with the drugs obtained thereby being diverted to Dr. Larson's own use. The citation was returnable on the 12th day of May, 1950, at which time the matter was passed by the Board until the 14th day of July, 1950. On that date Dr. Larson appeared in person before the Board and was represented by legal counsel. The testimony of Walter G. Graben, Seattle, Washington, an agent of the Federal Bureau of Narcotics, was taken before the Board in reference to Dr. Larson's purchase and use of various narcotic drugs.

At the hearing, Dr. Larson testified in his own behalf and admitted that he had been addicted to the use of such drugs. Action on the suspension or revocation of Dr. Larson's license was deferred by the Board and Dr. Larson was permitted to continue in medical practice upon certain conditions. Dr. Larson failed to comply with the conditions upon which he was permitted to continue practice. Dr. Larson was notified by the Medical Board to appear before the Board on several occasions, but he failed to do so. On October 10, 1951, Dr. Larson was notified, in writing, to appear before the Medical Board on November 9, 1951. Nothing was heard from Dr. Larson and he was again notified, on October 27, 1951, of the November meeting of the Board. Dr. Larson did not appear, nor did he comply with the notice given to him by the Board. After the Board had adjourned the November meeting, a letter was received from another physician indicating that Dr. Larson was ill. The Board had passed the case until February 15, 1952, and on December 19, 1951, Dr. Larson was sent a letter advising him to be present at the February meeting of the Board. Dr. Larson failed to appear.

Dr. Larson was born at Clintonville, Wisconsin, on April 27, 1914. He received his Doctor of Medicine Degree from Northwestern University on December 3, 1941. He was licensed in Minnesota by examination on May 7, 1943.

Minnesota State Medical Association Roster for 1952

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M. L. Ransom	Hancock
R. A. Rossberg	Morris
A. I. Arneson	Morris

SWIFT COUNTY

Ed. J. Kaufman	Appleton
R. P. Griffin	Benson
B. C. Ostling	Kerkhoven

TODD COUNTY

M. E. Mosby	Long Prairie
J. M. Cook	Staples
C. B. Will	Bertha

TRAVERSE COUNTY

A. L. Lindberg	Wheaton
A. E. Magnuson	Wheaton
W. F. Muir	Browns Valley

WABASHA COUNTY

C. G. Ochsner	Wabasha
E. C. Bayley	Lake City
E. W. Ellis	Elgin

WADENA COUNTY

L. T. Davis	Wadena
C. H. Pierce	Wadena
W. E. Parker	Sebeka

WASECA COUNTY

G. H. Olds	New Richland
H. M. McIntire	Waseca
B. J. Gallagher	Waseca

WASHINGTON COUNTY

W. R. Humphrey	Stillwater
Russell E. Carlson	Stillwater

WILKIN COUNTY

W. E. Wray	Campbell

WINONA COUNTY

R. H. Wilson	Winona
R. B. Tweedy	Winona
Herbert Heise	Winona

WRIGHT COUNTY

John J. Catlin	Buffalo
C. L. Roholt	McIntosh

YELLOW MEDICINE COUNTY

R. H. Kath	Arlington
Carl Lundell	Granite Falls
E. R. Hudec	Echo

Councilor Districts

First District

J. M. Waugh, M.D. .... Rochester

Counties—Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona

Second District

R. C. Hunt, Sr., M.D. .... Fairmont

Counties—Cottonwood, Faribault, Jackson, Martin, Murray, Nobles, Pipestone, Rock

Third District

L. G. Smith, M.D. .... Montevideo

Counties—Big Stone, Chippewa, Kandiyohi, Lac Qui Parle, Lincoln, Lyon, Meeker, Pope, Renville, Stevens, Swift, Traverse, Yellow Medicine.

Fourth District

H. J. Nilson, M.D. .... North Mankato

Counties—Blue Earth, Brown, Carver, Le Sueur, McLeod, Nicollet, Redwood, Scott, Sibley, Waseca, Watonwan.

Fifth District

Justus Ohage, M.D. .... Saint Paul

Counties—Anoka, Chisago, Dakota, Isanti, Kanabec, Mille Lacs, Pine, Ramsey, Sherburne, Washington.

Sixth District

O. J. Campbell, M.D. .... Minneapolis

Counties—Hennepin, Wright.

Seventh District

W. W. Will, M.D. .... Bertha

Counties—Aitkin, Beltrami, Benton, Cass, Clearwater, Crow Wing, Hubbard, Koochiching, Morrison, Stearns, Todd, Wadena.

Eighth District

C. L. Oppegaard, M.D. .... Crookston

Counties—Becker, Clay, Douglas, Grant, Kittson, Lake of the Woods, Mahnomen, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Wilkin.

Ninth District

A. O. Swenson, M.D. .... Duluth

Counties—Carlton, Cook, Itasca, Lake, St. Louis.

Woman's Auxiliary
to the
Minnesota State Medical Association

Officers

Mrs. F. P. Moersch	*President*	Rochester
Mrs. C. L. Sheedy	*President-Elect*	Austin
Mrs. Charles W. Waas	*Past President*	Saint Paul
Mrs. Harry Klein	*First Vice President*	Duluth
Mrs. Reuben F. Erickson	*Second Vice President*	Edina
Mrs. Andrew Christiansen	*Third Vice President*	Saint Paul
Mrs. R. L. J. Kennedy	*Fourth Vice President*	Rochester
Mrs. Harold G. Benjamin	*Recording Secretary*	Minneapolis
Mrs. H. M. Carryer	*Corresponding Secretary*	Rochester
Mrs. P. S. Rudie	*Treasurer*	Duluth
Mrs. J. C. Buscher	*Auditor*	Saint Cloud
Mrs. L. Raymond Scherer	*Historian*	Minneapolis
Mrs. S. S. Hesselgrave	*Parliamentarian*	Saint Paul

Regional Advisors

Mrs. W. A. Merritt	First District	Rochester
Mrs Walter Benjamin	Second District	Pipestone
Mrs. O. B. Fesenmaier	Third District	New Ulm
Mrs. Donald C. Anderson	Fourth District	Danube
Mrs. C. Harry Ghent	Fifth District	Saint Paul
Mrs. Frederick H. K. Schaaf	Sixth District	Minneapolis
Mrs. G. H. Goehrs	Seventh District	Saint Cloud
Mrs. C. L. Oppegaard	Eighth District	Crookston
Mrs. John K. Butler	Ninth District	Cloquet

Chairmen of Committees

STANDING COMMITTEES

Advisory—Mrs. Charles W. Waas	Saint Paul
Archives—Mrs. J. M. Neal	Saint Paul
Bulletin—Mrs. John Dordal	Sacred Heart
Cancer—Mrs. J. P. Howell	Rochester
Editor (Minnesota Medicine)—Mrs. H. O. Beek	Saint Paul
Emergency Nursing—Mrs. I. Siversen	Minneapolis
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Resolutions—Mrs. S. C. G. Oeljen	Waseca
Revisions—Mrs. Leo W. Fink	Minneapolis
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SPECIAL COMMITTEES

News Letter—Mrs. Leonard Arling	Minneapolis
Workshop—Mrs. Wallace P. Ritchie	Saint Paul
In Memoriam—Mrs. S. J. Hillis	Minneapolis
Roster—Mrs. Leo A. Nash	Saint Paul
Health Days—Mrs. W. G. Johnson	St. Paul
Civilian Defense—Mrs. D. M. Masson	Rochester

County Society Roster

Key to Symbols: *Deceased; †Affiliate, Associate or Life Members; ‡In Service; §Wife is Member of Woman's Auxiliary.

BLUE EARTH COUNTY MEDICAL SOCIETY

Regular meetings, last Monday of each month
Annual meeting, December
Number of Members—50

President
Engstrom, Robert B. ......Mankato
Secretary
Chalgren, Wm. S. ....Mankato

‡ Aga, John ....Mankato
Anderson, J. J. ....Mankato
§ Andrews, R. N. ....Mankato
§ Batdorf, B. N. ......Good Thunder
§ Butzer, J. A. ....Mankato
§ Chalgren, Wm. S. ....Mankato
§ Conley, R. H. ....Mankato
§†Dahl, G. A. ....Mankato
§ Dahlstet, J. P. ....Mankato
Denman, A. V. ....Mankato
†*Edwards, R. T. ....Columbus, O.
§ Engstrom, Robert ....Mankato
§ Eustermann, J. J. ....Mankato
§ Franchere, F. Wm. .....Lake Crystal
§ Fugina, G. R. ....Mankato
§ Geurs, B. R. ....Mankato
§ Haes, J. E. ....Mankato
§ Hammar, L. M. ....Mankato
Hankerson, R. G. ..Minnesota Lake
§ Hassett, R. G. ....Mankato
§ Hoeper, P. G. ....Mankato
§ Howard, E. G. ....Mapleton
§ Howard, M. I. ....Mankato
Huffington, H. L. ....Mankato
§ Jones, O. H. ....Mankato
§†Juliar, R. O. ....St. Clair
§ Kaufman, W. B. ....Mankato
§ Kearney, R. W. ....Mankato
§ Kemp, A. F. ....Mankato
§ Koenigsberger, Chas. ......Mankato
Langhoff, A. H. ....Mankato
† Liedloff, A. G. ....Mankato
§ Lindblom, A. E. ......No. Mankato
Luck, Hilda ....Mankato
§ Mickelson, J. C. ....Mankato
§†Miller, V. I. ....Mankato
§ Morgan, H. O. ....Amboy
§ Penn, G. E. ....Mankato
§ Samuelson, L. G. ....Mankato
† Schmidt, P. A. ....Aurora, Ill.
* Schmitz, A. A. ....Mankato
§ Sjoding, J. D. ....Mankato
§ Smith, P. M. ....Lake Crystal
§†Sohmer, A. E. ....Mankato
§ Stillwell, W. C. ....Mankato
§ Troost, H. B. ....Mankato
§ Vezina, J. C. ....Mapleton
§ Von Drasek, Joseph ....Mankato
† Wentworth, A. G. ....Mankato
Williams, H. O. ......Lake Crystal

BLUE EARTH VALLEY MEDICAL SOCIETY

Regular meetings, third Thursday of each month
Annual meeting in November
Number of Members—37

President
Drexler, George W. ......Blue Earth
Secretary
Boysen, Herbert ....Madelia

Armstrong, R. S. ....Winnebago
Barr, W. H. ....Wells
§ Blumberg, H. B. ....Fairmont
§ Boysen, Herbert ....Madelia
Chambers, W. C. ....Blue Earth
Cooper, M. D. ....Winnebago
§ Craychee, W. A. ....Fairmont
Drexler, G. W. ....Blue Earth
† Farrish, R. C. ....Sherburne
Gardner, V. H. ....Fairmont
Hanson, Lewis ....Frost
Heimark, J. J. ....Fairmont
† Holm, P. F. ....Sarasota, Fla.
Hunt, R. C. ....Fairmont
§ Hunt, R. S. ....Fairmont
† Hunte, A. F. ......Alhambra, Calif.
§ Johnson, E. A. ....Monterey
Krause, C. W. ....Fairmont
Lester, M. J., Jr. ....Truman
§ Lindahl, M. J. ....Sherburne
McGroarty, J. J. ....Easton
Mills, J. L. ....Winnebago
§ Misbach, Wm. D. ....Fairmont
§ Ourada, A. L. ....Ceylon
Parsons, R. L. ....Monterey
§ Rollins, T. G. ....Elmore
Rowe, W. H. ....Fairmont
§ Russ, H. H. ....Blue Earth
§ Smith, D. V. ....Blue Earth
§ Snyder, C. D. ....Kiester
§ Thayer, E. A. ....Fairmont
Vaughan, V. M. ....Truman
Virnig, M. P. ....Wells
§ Virnig, R. P. ....Wells
§ Wandke, O. E. ....Fairmont
§ Wilson, C. E. ....Blue Earth
§ Zemke, E. E. ....Fairmont

BROWN-REDWOOD-WATONWAN MEDICAL SOCIETY

Regular meetings, quarterly
Annual meeting, May
Number of Members—36

President
Fesenmaier, O. B. ....New Ulm
Secretary
Fritsche, C. J. ....New Ulm

Ayres, R. W. ....Little Rock, Ark.
Beaton, J. G. ....New Ulm
Bergman, O. B. ....St. James
§ Black, W. A. ....New Ulm
Bratrude, E. J. ....St. James
Cairns, R. J. ....Redwood Falls
§ Coulter, H. E. ....Madelia
§ Dubbe, F. H. ....New Ulm
§ Dysterheft, A. F. ....Gaylord
§ Fesenmaier, O. B. ....New Ulm
‡ Flinn, J. B. ....Pt. Blakely, Wash.
§ Fritsche, Albert ....New Ulm
§ Fritsche, Carl J. ....New Ulm
§ Fritsche, T. R. ....New Ulm
Goblirsch, A. P. ....Sleepy Eye
Hovde, Rolf ....Winthrop
§ Hruza, W. J. ....Madelia
Johnson, A. F. ....Isle
Just, H. J. ....Hastings
§ Keithahn, E. E. ....Sleepy Eye
‡§Kitzberger, Peter ....New Ulm
§ Kruzick, S. J. ....Sleepy Eye
§ Kusske, A. L. ....New Ulm
§†Kusske, B. W. ......St. Louis Park
§ Mattson, A. D. ....St. James
§ Nelson, G. E. ....Fairfax
Nuessle, W. G. ....Springfield
§ Oppen, M. G. ....New Ulm
§ Penk, E. L. ....Springfield
Peterson, R. A. ....Vesta
§†Reineke, G. F. ....New Ulm
§ Saffert, C. A. ....New Ulm
Schroeppel, J. E. ....Winthrop
§ Seifert, O. J. ....New Ulm
§ Vogel, H. A. ....New Ulm
§ Wohlrabe, E. J. ....Springfield

CAMP RELEASE DISTRICT MEDICAL SOCIETY

Chippewa, La Qui Parle and Yellow Medicine Counties
Regular meetings, April, May, September and October
Number of Members—31

President
Westby, Magnus ....Madison
Secretary
Krystosek, L. A. ....Clara City

§ Allen, J. H. ....Montevideo
Anderson, C. A. ....Madison
† Andrejek, A. R. ....Minneapolis
§ Boody, G. J., Jr. ....Dawson
§ Burns, F. M. ....Milan
§ Burns, M. A. ....Milan
Guilbert, G. D. ......Legion, Texas
§ Hartfiel, H. A. ....Montevideo
§ Hauge, M. I. ....Clarkfield
Holmberg, L. J. ....Canby
§ Hudec, E. R. ....Echo
Hudspeth, Wm. T. ....Madison
Johnson, C. M. ....Clarkfield
§ Johnson, V. M. ....Dawson
† Jordan, Kathleen ......Granite Falls
Jordan, L. S. ....Granite Falls
Kath, R. H. ....Arlington
Kaufman, W. C. ....Appleton
§ Krystosek, L. A. ....Clara City
† Lee, Walter N. ....Claremont, Calif.
§ Lima, L. R., Jr. ....Montevideo
§ Lundell, C. L. ....Granite Falls
Nelson, M. S. ....Granite Falls
§ Owens, W. A. ....Montevideo
§ Pertl, A. L. ....Canby
§ Roust, H. A. ....Montevideo
§ Schmidt, P. G., Jr. ..Granite Falls
* Swanson, R. R. ....St. Paul
§ Smith, L. B ....Montevideo
§ Westby, Magnus ....Madison
Westby, N. M. ....Madison

CLAY-BECKER COUNTY MEDICAL SOCIETY

Regular meeting date, none
Annual meeting, December
Number of Members—27

President
Thysell, V. D. .... Hawley
Secretary
Dodds, Wm. C. .... Detroit Lakes

† Aborn, W. H. .... Hawley
Bottolfson, B. T. .... Moorhead
Brabec, P. F. .... Detroit Lakes
Cedarleaf, Cherry B. ...... St. Paul
§ Dodds, Wm. C. ...... Detroit Lakes
§ Duncan, J. W. .... Moorhead
* Ellingson, A. R. ...... Detroit Lakes
Hagen, O. J. .... Moorhead
Humphrey, E. W. .... Moorhead
Ingebrigtson, E. K. Big Springs, Texas
Johnson, Olga H. .... Moorhead
§ Larson, Arnold ...... Detroit Lakes
§ Lorentzen, E. S. .... Detroit Lakes
§ Midthune, A. S. .... Lake Park
§ Moberg, C. W. .... Detroit Lakes
Moe, A. E. ...... Marysville, Calif.
Nordlund, Mildred ...... White Earth
§ Odland, M. E. ...... Detroit Lakes
§ Oliver, James .... Moorhead
§ Otto, H. C. .... Frazee
§ Rice, H. G. .... Moorhead
§ Rutledge, L. H. ...... Detroit Lakes
Saxman, Gertrude Olsen .. Georgetown
Seitz, S. B. .... Barnesville
§ Simison, Carl .... Barnesville
† Thysell, F. A. .... Moorhead
Thysell, V. D. .... Hawley

EAST CENTRAL MINNESOTA MEDICAL SOCIETY

Anoka, Chisago, Isanti, Kanabec, Mille Lacs, Pine and Sherburne Counties
Regular meetings, first Tuesday of February, April, June, August, October and December
Annual meeting, first Tuesday in December
Number of Members—44

President
Berg, Harry L. .... Mora
Secretary
Roehlke, A. B. .... Elk River

§ Albrecht, H. H. ...... Chisago City
Arends, A. L. .... Minneapolis
‡ Baars, C. W. .... Camp Cook, Calif.
§ Berge, H. L. .... Mora
Beyer, Eugene .... Braham
§ Blomberg, W. R. .... Princeton
Bossert, C. S. .... Mora
§ Bunker, B. W. .... Anoka
Burseth, E. C. .... Mora
Clothier, E. F. .... Elk River
† Dedolph, T. H. .... Braham
† Dredge, H. P. .... Sandstone
Engel, R. C. H. .... Cambridge
§ Gully, R. J. .... Cambridge
Halpin, J. E. .... Rush City
* Hedenstrom, L. H. .... Cambridge
Henry H. W. .... Hinckley
Holmes, A. E. .... Rush City
Hubin, E. G. .... Sandstone
Kapsner, A. T. .... Princeton
† Kelsey, C. G. .... Hinckley
Kramer, S. E. .... Anoka
Krieser, A. E. .... Anoka
Larson, G. E. .... Cambridge
‡ Lorton, W. L. .... Anoka
Mach, R. F. .... Rush City
Magnuson, R. C. .... Cambridge
March, Kenneth A. ...... Cambridge
§ McManus, W. F. .... Princeton
Metcalf, N. B. .... Onamia
§ Miller, E. W. .... Anoka
§ Nordman, W. F. .... Mora
Nygren, W. T. .... Braham
§ Roehlke, A. B. .... Elk River
Schut, John W. .... Anoka
§ Schlesselman, G. H. ..... Minneapolis
§ Sherman, H. T. .... Cambridge
Spurzen, R. J. .... Anoka
§ Stratte, A. K. .... Pine City
§ Swensen, R. G. ...... North Branch
§ Tesch, G. H. .... Elk River
Vik, Melvin .... Anoka
† Waller, J. D. .... Pine City
Whitney, R. A. .... Montana

FREEBORN COUNTY MEDICAL SOCIETY

Regular meetings, every two months, third Thursday
Annual meeting, December
Number of Members—32

President
Person, J. P. .... Albert Lea
Secretary
Steiner, L. E. .... Albert Lea

§ Barr, L. C. .... Albert Lea
Burns, Catherine .... Albert Lea
§ Butturff, C. R. .... Freeborn
§ Calhoun, F. W. .... Albert Lea
§ Demo, R. A. .... Albert Lea
§ Donovan, D. L. .... Albert Lea
§ Egge, S. G. .... Albert Lea
§ Ellertson, L. M. .... Albert Lea
§ Erdal, O. A. .... Albert Lea
§ Folken, F. G. .... Albert Lea
† Freeman, J. P. .... Glenville
Freligh, W. P. .... Albert Lea
† Gullixson, A. ...... Longmont, Colo.
§ Hansen, T. M. .... Albert Lea
Kaasa, L. J. .... St. Peter
§ Keil, M. A. .... Albert Lea
† Kamp, B. A. .... Albert Lea
† Leopard, B. A. .... Brownsville, Tex.
Miller, Samuel .... Albert Lea
§ Neel, Harry B. .... Albert Lea
§ Nelson, C. E. .... Albert Lea
§ Nesheim, M. O. .... Emmons
§ Palmer, C. F. .... Albert Lea
* Palmer, W. L. .... Albert Lea
† Palmerton, E. S. .... Minneapolis
§ Person, J. P. .... Albert Lea
§ Prins, L. R. .... Albert Lea
Schmidt, R. F. .... Alden
§†Schultz, J. A. .... Albert Lea
§ Sherman, A. G. .... Albert Lea
§ Steiner, L. E. .... Albert Lea
§ Whitson, S. A. .... Albert Lea

GOODHUE COUNTY MEDICAL SOCIETY

Regular meeting date, none
Annual meeting, December
Number of Members—29

President
Steffens, L. A. .... Red Wing
Secretary
Hartnagel, G. F. .... Red Wing

Aanes, A. M. .... Red Wing
§ Akins, W. M. .... Red Wing
Anderson, S. H. ...... Kerville, Tex.
Bagby. G. W., Ft. Leonard Wood, Mo.
‡ Boswell, J. T. .... Wanamingo
Bridge, E. V. .... Cannon Falls
§ Brusegard, J. F. .... Red Wing
Claydon, H. F. .... Red Wing
‡ Dovenmuehle, R. H. ...... Hastings
Flom, M. G. .... Zumbrota
§ Graves, R. B. .... Red Wing
§ Halvorson, J. W. .... Goodhue
§ Hartnagel, G. F. .... Red Wing
§ Hawley, G. M. B. II .... Red Wing
§ Hedin, R. F. .... Red Wing
§ Hofmann, G. N. ...... Cannon Falls
*†Johnson, A. E. .... Minneapolis
† Jones, A. W. .... Red Wing
§ Juers, E. H. .... Red Wing
§ Kimmel, G. C. .... Red Wing
§ Larson, O. E. H. .... Zumbrota
§ Liffrig, W. W. .... Red Wing
§ Miller, W. R. .... Red Wing
Reitmann, J. H. .... Sandstone
§ Sherman, R. V. .... Red Wing
† Smith, M. W. .... Red Wing
§ Steffens, L. A. .... Red Wing
§ Wasmund, C. W. .... Red Wing
Williams, M. R. ...... Cannon Falls

HENNEPIN COUNTY MEDICAL SOCIETY

Regular meetings, first Monday of each month
Annual meeting, October, first Monday
Number of Members—888

President
Jones, William R. ...... Minneapolis
Secretary
Aling, C. A. .... Minneapolis
Executive Secretary
Cook, Thomas P. ...... Minneapolis
Abramson, Milton ...... Minneapolis
Anderson, A. S. .... Minneapolis
Adkins, C. D. .... Minneapolis
§ Agustsson, Heidar ...... Minneapolis
§ Ahern, E. E. .... Minneapolis
§ Alexander, H. A. ...... Minneapolis
§ Aling, Chas. A. .... Minneapolis
§ Altnow, Hugo O. .... Minneapolis
§ Andersen, S. C. .... Minneapolis
§ Anderson, D. D. ...... Minneapolis
Anderson, D. M. ...... Minneapolis
§†Anderson, E. D. .... Minneapolis
§ Anderson, E. R. .... Minneapolis

§‡	Anderson, F. J.	Ft. Leavenworth, Kans.
§	Anderson, K. W.	Minneapolis
§	Anderson, U. S.	Minneapolis
	Anderson, Wm. H.	Minneapolis
	Anderson, Wm. T.	Minneapolis
	Andreassen, E. C.	Saint Paul
§	Andresen, K. D'A	Minneapolis
§	Andrews, R. S.	Minneapolis
§	Ankner, F. J.	Minneapolis
§	Arey, Stuart L.	Minneapolis
§	Arlander, C. E.	Minneapolis
§	Arling, L. S.	Minneapolis
	Arnold, Anna W.	Minneapolis
§†	Aune, Martin	Minneapolis
†	Aurand, Wm. H.	Minneapolis
§	Baggenstoss, O. J.	Minneapolis
§	Baird, J. W.	Minneapolis
§	Baken, M. P.	Minneapolis
	Baker, A. B.	Minneapolis
	Baker, A. T.	Minneapolis
†	Baker, Looe	Minneapolis
§	Baker, M. E.	Minneapolis
§	Balkin, S. G.	Minneapolis
‡	Bank, H. E.	Portland, Ore.
§	Barno, Alex	Minneapolis
§	Barr, M. M.	Minneapolis
‡	Barron, J. J.	Camp McCoy, Wis.
§	Barron, Moses	Minneapolis
§‡	Baxter, S. H.	Minneapolis
§	Beach, Northrop	Minneapolis
†	Beard, A. H.	Deephaven
†	Becker, A. M.	Minneapolis
§	Bedford, E. W.	Minneapolis
§	Beirstein, Saml.	Minneapolis
§	Beiswanger, R. H.	Minneapolis
†	Bell, E. T.	Minneapolis
§	Bellville, T. P.	Minneapolis
	Belzer, M. S.	Minneapolis
	Benesh, L. A.	Minneapolis
†	Benjamin, A. E.	Minneapolis
§	Benjamin, E. G.	Minneapolis
§	Benjamin, H. G.	Minneapolis
	Benson, E. E.	Minneapolis
	Berger, A. G.	Minneapolis
§	Bergh, G. S.	Minneapolis
	Bergh, S. M.	Minneapolis
§	Berkwitz, N. J.	Minneapolis
	Berman, Reuben	Minneapolis
	Bernstein, I. C.	Minneapolis
§	Bessesen, A. N., Jr.	Minneapolis
	Bessesen, D. H.	Minneapolis
	Bessesen, Wm. A.	Minneapolis
	Bieter, R. N.	Minneapolis
§	Bilka, P. J.	Minneapolis
§	Binder, M. R.	Minneapolis
§	Blake, A. J.	Hopkins
*	Blake, James	Hopkins
§	Blake, James A.	Hopkins
§	Blake, Paul S.	Hopkins
§	Bloedel, T. J. G.	Osseo
§	Bloom, N. B.	Minneapolis
§	Blumenthal, J. S.	Minneapolis
	Bockman, M. W. H.	Minneapolis
§‡	Bodelson, A. H.	Pensacola, Fla.
	Boehrer, J. J., Jr.	Minneapolis
§	Bofenkemp, Benj.	Minneapolis
§	Bohn, D. G.	Minneapolis
§	Boies, L. R.	Minneapolis
†	Booth, A. E.	Minneapolis
	Borden, C. W.	Minneapolis
§	Borgeson, E. J.	Minneapolis
§	Borman, C. N.	Minneapolis
	Borowicz, L. A.	Minneapolis
§	Bowers, G. G.	Minneapolis
	Boynton, Ruth E.	Minneapolis
§	Bratrud, A. F.	Minneapolis
†	Breitenbucher, R. B.	Minneapolis
§	Brekke, Harvey J.	Minneapolis
	Brill, Alice K.	Minneapolis
	Brookers, Charles	Minneapolis
†	Brown, E. D.	Minneapolis
	Brown, Wm. D.	Minneapolis
*	Brutsch, G. C.	Minneapolis
§	Buchstein, H. F.	Minneapolis
§	Buirge, R. E.	Minneapolis
	Bulkley, Kenneth	Minneapolis
§	Burnham, W. H.	Minneapolis
§	Bushard, W. J.	Minneapolis
§	Buzzelle, L. K.	Minneapolis
§	Cable, M. L.	Minneapolis
§	Cabot, C. M.	Minneapolis
§	Cabot, V. S.	Minneapolis
	Cady, L. H.	Minneapolis
*	Callerstrom, G. W.	Minneapolis
	Cameron, Isabell L.	Minneapolis
	Campbell, L. M.	Minneapolis
§	Campbell, O. J.	Minneapolis
§	Caplan, Leslie	Minneapolis
§	Card, Wm. H.	Minneapolis
§	Carey, J. B.	Minneapolis
§	Carlander, L. W., Jr.	Minneapolis
§	Carlson, Lawrence	Minneapolis
§	Carlson, L. T.	Minneapolis
§	Caron, R. P.	Minneapolis
§	Caspers, Carl G.	Minneapolis
§	Cavanor, F. T.	Minneapolis
§	Cedar, E. T.	Minneapolis
§	Challman, S. A.	Minneapolis
	Chapman, C. B.	Minneapolis
	Chavez, D. A.	Minneapolis
	Chester, M. D.	Minneapolis
	Chesley, A. J.	Saint Paul
§	Chisholm, T. C.	Minneapolis
	Christensen, L. E.	Minneapolis
§	Christianson, H. W.	Minneapolis
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§†Simons, J. H.	Minneapolis
§ Simonson, D. B.	Minneapolis
Simpson, E. De W.	Minneapolis
§ Sinykin, M. B.	Minneapolis
Siperstein, D. M.	Minneapolis
§ Sisterman, T. J.	Minneapolis
† Sivertsen, Andrew	Minneapolis
§†Sivertsen, Ivar	Minneapolis
§ Skjold, A. C.	Minneapolis
Smiley, J. T.	Minneapolis
§ Smisek, F. M. E.	Minneapolis
Smith, Adam M.	Minneapolis
§ Smith, Archie M.	Minneapolis
§ Smith, Baxter A., Jr.	Minneapolis
Smith, G. G.	Minneapolis
Smith, Homer R.	Minneapolis
† Smith, Margaret I.	Robbinsdale
Smith, Marie A.	Minneapolis
* Smith, Norman M.	Minneapolis
§ Smith, Norvin R.	Minneapolis
§ Smith, Theo. S.	Minneapolis
Soderlind, R. T.	Minneapolis
§ Solhaug, Saml. B.	Minneapolis
§ Solvason, H. M.	Minneapolis
§ Spano, Jos. P.	Minneapolis
§ Spink, W. W.	Minneapolis
§ Sponsel, Kenath	Minneapolis
† Spratt, Chas. N.	Minneapolis
§ Stahr. A. C.	Hopkins
§ Stanford, C. E.	Minneapolis
‡§State. David	Phoenix, Ariz.
‡ Staub, H. P.	New York, N. Y.
Stein, K. E.	Lakeville
§ Stelter, L. A.	Minneapolis
§‡Stennes, J. L.	Minneapolis
Stenstrom. Annette	Minneapolis
Stewart, M. J.	Minneapolis
§ Stewart, Rolla I.	Minneapolis
‡ Steigler, F. S.	Nurenberg. Germany
Stillwell, G. K.	Minneapolis
§ Stoesser, A. V.	Minneapolis
† Stomel, Joseph	Los Angeles, Calif.
§ Stone, S. P.	Minneapolis
Stone, Harvey W.	Minneapolis
† Strachauer, A. C.	Minneapolis
§ Strickler. I. H.	Minneapolis
§ Strom, G. W.	Minneapolis
Stromgren, D. T.	Minneapolis
§ Stromme. Wm. B.	Minneapolis
Strunk, C. A.	Minneapolis
Stuermer, Harry	Minneapolis
§†Subby, Walter	Minneapolis
Sukov, Marvin	Minneapolis
§ Swanson, R. E.	Minneapolis
§ Sweetser, H. B., Jr.	Minneapolis
§ Sweetser, T. H.	Minneapolis
† Swetzer, S. E.	Minneapolis
§†Swendseen, C. G.	Minneapolis
§ Tangen, G. M.	Minneapolis
Taylor, Jos. H.	Minneapolis
§ Tenner, R. J.	Minneapolis
§ Terry, Wm. S.	Minneapolis
† Thomas, Geo. E.	Minneapolis
* Thomas, Geo. H.	Minneapolis
Thomes, A. Boyd	Minneapolis
§ Thompson, W. H.	Minneapolis
Thomson, J. M.	Minneapolis
§ Thorson, S. V.	Minneapolis
§ Thysell, D. M.	Minneapolis
Tichey, Fae Y.	Minneapolis
§†Tingdale, A. C.	Minneapolis
§ Tinkham, R. G.	Minneapolis
Titrud, L. A.	Minneapolis
§ Tobin, John D.	Minneapolis
Todd, Romona L.	Minneapolis
§ Trach, B. B.	Minneapolis
§ Trow, James E.	Minneapolis
§ Trow, Wm. H.	Minneapolis
§ Trueman, H. D.	Minneapolis
§ Tudor, R. B.	Minneapolis
† Tunstead, H. J.	Minneapolis
§†Turnacliff, D. D.	Saint Paul
† Twomey, J. E.	Minneapolis
§ Ude, Walter H.	Minneapolis
§†Ulrich, Henry L.	Minneapolis
§ Ulvestad, H. S.	Minneapolis
§ Undine, C. A.	Minneapolis
Vik, Arthur E.	Minneapolis
§ Wahlquist, H. F.	Minneapolis
§ Waldron, C. W.	Minneapolis
§ Wall, Carl R.	Minneapolis
§ Walsh, Francis M.	Minneapolis
§ Walsh, Wm. T.	Minneapolis
Wangensteen, O. H.	Minneapolis
Ward, Percy A.	Minneapolis
§ Watson, C. G.	Minneapolis
Watson, C. J.	Minneapolis
† Weaver, M. Mc.	Vancouver, B. C.
§ Webb, Edgar A.	Minneapolis
Webb, Roscoe C.	Minneapolis
§ Webber, R. J.	Hopkins
§ Weisberg, R. J.	Minneapolis
Welles, H. J.	Minneapolis
§ Wendland, J. P.	Minneapolis
Werner, George	Minneapolis
† West, Catherine C.	Minneapolis
‡ Westphal, K. F.	Portland, Ore.
§†Wethall, Anton G.	Minneapolis
Wetherby, Macnider	Minneapolis
§*Weum, T. W.	Minneapolis
Wheeler, R. W.	Minneapolis
§ White, A. A.	Minneapolis
§ White, S. M.	Minneapolis
§ White, W. D.	Minneapolis
§ Whitesell, L. A.	Minneapolis
§ Widen, W. F.	Minneapolis
† Wilcox, A. E.	Minneapolis
† Wilder, K. W.	Minneapolis
§ Wilder, R. L.	Minneapolis
§ Wilder, R. M., Jr.	Minneapolis
§ Wilken, P. A.	Minneapolis
† Willcutt, C. E.	Phoenix, Ariz.
† Williams, Robert	Carthage, Ill.
§ Wilson, R. H.	Minneapolis
Winther, Nora M. C.	Minneapolis
§ Wipperman, F. F.	Minneapolis
§ Witham, Carl A.	Minneapolis
Wittich. F. W.	Minneapolis
§ Wohlrabe, A. A.	Minneapolis
§ Wohlrabe. A. C.	Minneapolis
§ Wolf, Alfred H.	Minneapolis
Wolter, Frederick H.	Minneapolis
Worden, R. E.	Columbus, Ohio
‡ Wright, T. D.	Minneapolis
§ Wright, Wale S.	Minneapolis
Wright, Wm. S.	Minneapolis
Wyatt, O. S.	Minneapolis
Wynne, H. M. N.	Minneapolis
§ Ylvisaker, R. S.	Minneapolis
§ Yoerg, Otto W.	Minneapolis
Zahrendt, O. Lewis	Minneapolis
Zaworski, Leo A.	Minneapolis
§ Zierold, A. A.	Minneapolis
§ Zinter, F. A.	Minneapolis
§ Ziskin, Thos.	Minneapolis

KANDIYOHI-SWIFT-MEEKER COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of each month
Annual meeting, December
Number of Members—49

President	
Wilmot, Harold E.	Litchfield
Secretary	
Jacobs, D. L.	Willmar
Allison, D. D.	Litchfield
Austrian, Sol	Cosmos
Bosland, H. G.	Willmar
Bradley, N. J.	Willmar
Chadbourn, W. A.	Litchfield
† Daignault, Oscar	Benson
† Danielson, K. A.	Litchfield
Danielson, Lennox	Litchfield
Dille, D. E.	Litchfield
Ellinger, A. J.	Willmar
Eberley, T. S.	Benson
Fisher, J. M.	Willmar
Frederickson, Alice C.	Willmar
* Frederickson, Guy U. Y.	Willmar
Frisch, F. P.	Willmar
† Frost, E. H.	Willmar
Giere, S. W.	Benson
Gillman, L. C.	Willmar
Griffin, R. P.	Benson
Guy, Jack A.	New London

Herbst, R. F. ....Willmar
Hinz, W. E. ....Willmar
* Hodapp, R. J. ....Willmar
Hodapp, R. V. ....Willmar
Holm, Donald ....Willmar
Jacobs, D. L. ....Willmar
§†Jacobs, J. C. ....Willmar
* Johnson, Hans ....Kerkhoven
Kaufman, E. J. ....Appleton
Kelley, K. J. ....Litchfield
Lundblad, R. M. ....Clara City
Macklin, W. E., Jr. ....Willmar
McCarthy, A. M. ....Willmar
Michels, R. P. ....Willmar
Nelson, K. L. ....Warroad
O'Connor, D. C. ....Eden Valley
Opsahl, L. J. ....Willmar
Ostling, B. C. ....Kerkhoven
† Penhall, F. W. ....Willmar
Peterson, W. E. ....Willmar
Porter, O. M. ....Willmar
Proeschel, R. K. ....Willmar
Rygh, H. N. ....Atwater
Sellers, G. K. ....Dassel
Solsem, F. N. S. ....Spicer
Sutherland, W. H. ....Benson
Verby, J. E., Jr. ....Litchfield
Wilmot, C. A. ....Litchfield
Wilmot, H. E. ....Litchfield

LYON-LINCOLN COUNTY MEDICAL SOCIETY

Regular meetings, last Tuesday of September, October, April and May
Annual meeting, last Tuesday of October
Number of Members—27

President
Peterson, Kenneth ....Marshall
Secretary
Purves, G. H. ....Hendricks

* Akester, Ward ....Fergus Falls
‡ Benson, L. M. ..Camp Rucker, Ala.
Bodaski, Albert A. ....Tyler
Ecksale, J. E. ....Marshall
Ferguson, W. C. ....Walnut Grove
Ford, Burton C. ....Marshall
Friedell, George ....Ivanhoe
† Gray, F. D. ....Marshall
Hedenstrom, P. C. ....Marshall
Helferty, J. K. V.A. Hosp, Boise, Ida.
Hermanson, P. E. ....Hendricks
Johnson, C. Percy .... Tyler
Monson, L. J. ....Canby
Murphy, J. E. ....Marshall
Peterson, K. A. ....Marshall
Purves, G. H. ....Hendricks
Remsberg, R. R. ....Tracy
† Robertson, J. B. ....Minneapolis
Sether, A. F. ....Ruthton
Smith, Lloyd A. ....Tyler
Thompson, C. O. ....Hendricks
Turbak, C. E. ....Canby
§ Vadheim, A. L. ....Tyler
§ Valentine, W. H. ....Tracy
Wolstan, S. D. ....Minneota
Workman, W. G. ....Tracy
Yaeger, W. W. ....Marshall

McLEOD COUNTY MEDICAL SOCIETY

Regular meeting, third Thursday of each month
Annual meeting, January
Number of Members—21

President
Selmo, J. D. ....Norwood
Secretary
Peterson, Kenneth L. ......Hutchinson

§ Brink, D. M. ....Hutchinson
† Clement, J. B. ....Lester Prairie
§ Goss, H. C. ....Glencoe
Goss, Martha D. ....Glencoe
‡ Griebie, Grant L. .....Ft. Lewis, Wash.
§ Holm, H. H. ....Glencoe
§ Jensen, A. M. ....Brownton
§ Klima, W. W. ....Stewart
§ Leitschuh, L. F. ....Winsted
§ Lippmann, E. W. ....Hutchinson
§ McMahon, M. J. ....Green Isle
§ Neumaier, Arthur ....Glencoe
§ Peterson, K. P. ....Hutchinson
Sahr, W. G. ....Hutchinson
Scholpp, O. W. ....Hutchinson
§ Selmo, J. D. ....Norwood
§ Sheppard, C. G. ....Hutchinson
§ Smith, G. R. ....Hutchinson
§ Smyth, J. J. ....Lester Prairie
§ Truesdale, C. W. ....Glencoe
§*Trutna, T. J. ....Silver Lake

MOWER COUNTY MEDICAL SOCIETY

Regular meeting, last Thursday of each month
Annual meeting, December
Number of Members—26

President
Seery, Thomas M. ....Austin
Secretary
Rosenthal, F. H. ....Austin

§ Anderson, D. P. ....Austin
§ Anderson, H. J. ....Austin
Barber, Tracy ....Austin
§ Cronwell, B. J. ....Austin
§ Fisch, H. M. ....Austin
§ Flanagan, L. G. ....Austin
§ Grise, W. B. ....Austin
Havens, J. G. W. ....Austin
† Hegge, O. H. ....Austin
§ Hegge, R. S. ....Austin
§ Hertel, G. E. ....Austin
§ Leck, P. C. ....Austin
‡ Lewis, J. S., Jr. ....Minneapolis
§ Lommen, P. A. ....Austin
McKenna, Elizabeth M. ....Austin
§ McKenna, J. K. ....Austin
Melzer, G. R. ....Lyle
Morse, M. P. ....LeRoy
Peterson, Stanley C. ....Austin
§ Robertson, P. A. ....Austin
§ Rosenthal, F. H. ....Austin
§ Sargent, E. C., Jr. ....Austin
Schneider, P. J. ....Adams
§ Seery, T. M. ....Austin
§ Sheedy, C. L. ....Austin
§ Twiggs, L. F. ....Austin
§ Van Cleve, H. P. ....Austin
§ Wilson, F. C. ....Austin
§ Wright, R. R. ....Austin

NICOLLET-LE SUEUR COUNTY MEDICAL SOCIETY

Regular meeting, not scheduled
Annual meeting, December
Number of Members—25

President
Johnson, H. C. ....No. Mankato
Secretary
Nilson, H. J. ....No. Mankato

§‡Aitkens, H. B. ....LeCenter
§ Branham, D. S. ....St. Peter
§ Bregel, F. L. ....St. Peter
§ Covell, W. W. ....St. Peter
§ Curtis, R. A. ....LeCenter
§ Erickson, Swan ....Le Sueur
§†Giroux, A. A. ....Mankato
§ Grimes, B. P. ....St. Peter
§ Johnson, H. C. ....No. Mankato
Kabrick, O. A. ....St. Peter
§ Larson, M. H. ....Nicollet
§ Lemander, M. E. ....St. Peter
§ Nilson, H. J. ....No. Mankato
§ Olmanson, E. G. ....St. Peter
§ Olson, D. C. ....Gaylord
‡ Orwoll, H. S. ....Japan
§ Rudie, C. N. ....St. Peter
Schulberg, V. A. ....
New Port Beach, Calif.
§ Sjostrom, L. E. ....St. Peter
§ Sonnesyn, N. N. ....Le Sueur
§ Strathern, C. S. ....St. Peter
§†Strathern, F. P. ....St. Peter
§ Traxler, J. F. ....Henderson
§ Wilcox, G. C. ....St. Peter
§ Wohlrabe, C. F. ......North Mankato

OLMSTED-HOUSTON-FILLMORE-DODGE COUNTY MEDICAL SOCIETY

Regular meetings, first Wednesday every odd month
Annual meeting, first Wednesday in November
Number of Members—552

President
Wellner, T. O. ....Rochester
Secretary
Carryer, H. M. ....Rochester

Abbott, Albert R. ....Rochester
§ Achor, R. W. P. ....Rochester
§ Adams, R. C. ....Rochester
* Adson, A. W. ....Rochester
§ Affeldt, D. E. ....Kasson
§ Ahlfs, J. J. ....Caledonia
§ Allen, E. V. N. ....Rochester
† Amberg, Samuel ....Rochester
§ Andersen, H. A. ....Rochester
Anderson, C. D. ....Chicago, Ill.
§ Anderson, M. J. ....Rochester
§ Anderson, M. W. ....Rochester
Antel, John ....Rochester
§ Arata, J. E. ....Ft. Wayne, Ind.
Armstrong, Wilbur A. ......Rochester
Artist, J. E. ....Rochester.
‡§Atmore, W. G. ..Corpus Christi, Tex.
§ Baggenstoss, A. H. ....Rochester
§ Bahn, R. C. ....Rochester
Bain, R. C. ....Rochester
§ Baker, G. S. ....Rochester

Baker, H. L. ....Rochester
§ Baker, H. R. ....Hayfield
§ Baker, P. L. ....Rochester
§ Baker, R. L. ....Hayfield
§†Balfour, D. C. ....Rochester
§ Balfour, W. M. ....Rochester
§ Banner, E. A. ....Rochester
§ Bannon, W. G. ....Rochester
§ Barber, J. R. ....Rochester
§ Bargen, J. A. ....Rochester
§ Barker, N. W. ....Rochester
§ Barnes, A. R. ....Rochester
Barnett, J. W. ....Rochester
Barry, Maurice J., Jr. .....Rochester
§ Bartholomew, L. G. ....Rochester
Baskin, John L. ......Cameron, Tex.
§ Baskin, R. H. ....Cameron, Tex.
§ Bastron, J. A. ....Rochester
§ Bayrd, E. D. ....Rochester
§ Beahrs, O. H. ....Rochester
§‡Beard, E. F. ...Randolph Field, Tex.
Becker, D. L. ....Rochester
‡ Becker, S. W., Jr. ......Chicago, Ill.
§ Bellegie, N. J. ....Houston, Tex.
§ Bender, L. F. ....Rochester
§ Benedict, W. H. ....Rochester
§ Benedict, Wm. L. ....Rochester
§ Benua, R. S. ....Rochester
§ Benz, E. J. ....Rochester
§ Berens, James ....Rochester
§ Berkman, J. M. ....Rochester
§ Bernatz, P. E. ....Rochester
§ Bickel, W. H. ....Rochester
§ Black, B. M. ....Rochester
Block, M. A. ....Rochester
† Blood, Arthur .....New Orleans, La.
† Boothby, W. M. .Randolph Fld., Tex.
§ Bostwick, J. L. ....Montgomery, Ala.
§ Boyd, D. A., Jr. ....Rochester
§ Braasch, J. W. ....Rochester
§† Braasch, Wm. E. ....Rochester
Brady, Joan ....Rochester
§ Brandenburg, R. O. ....Rochester
§ Brickley, P. M. ....Rochester
Brindley, C. O. ....Rochester
Brink, William R. ....Rochester
§ Brown, H. A. ....Rochester
§ Brown, J. R. ....Rochester
Broadbent, J. C. ....Rochester
Broders, C. W. ....Rochester
§ Brunsting, L. A. ....Rochester
§ Buie, L. A. ....Rochester
§ Burchell, H. B. ....Rochester
‡ Burgert, E. O., Jr. ....
Ft. Sam Houston, Tex.
§ Burke, E. C. ....Rochester
§ Butin, J. W. ....Rochester
§ Butt, H. R. ....Rochester
§ Cain, J. C. ....Rochester
§ Carey, J. M. ....Rochester
Carson, Willis ....Rochester
§ Carlisle, J. C. ....Rochester
§ Carr, D. T. ....Rochester
† Carroll, T. T. ....Rochester
§ Carryer, H. M. ....Rochester
Chance, D. P. ....Rochester
§ Childs, D. S., Jr. ....Rochester
Chriss, J. W. ....Rochester
§ Christensen, N. A. ....Rochester
§ Christoferson, L. A. ....Fargo, N.D.
§ Clagett, O. T. ....Rochester
§ Clark, L. W. ....Spring Valley
§ Clark, P. L., III ....Rochester
§ Comfort, M. W. ....Rochester
‡§Cooley, J. C. ....Rochester
Cooney, J. F. ....Rochester
Courtin, R. F. ....Rochester
§ Coventry, M. B. ....Rochester
Cowley, H. S. ....Rochester
§ Craig, W. M. ....Rochester
Craig, Joe D. ....Rochester
§†Crenshaw, J. L. ....Sanford, Fla.
§ Crumpacker, E. L. ....Minneapolis
Culp, O. S. ....Rochester
§ Curtiss, R. K. ....Rochester
§ Dahlin, D. C. ....Rochester
§ Daugherty, G. W. ....Rochester
§ Davis, A. C. ....Rochester
§ Davis, G. D. ....Rochester
† Davis, Neal B. ....Rochester
‡ Davis, R. E. ....Geneva, N. Y.
§ Dearing, Wm. H., Jr. .....Rochester
Decker, D. D. ....Rochester
§ Devine, K. D. ....Rochester
Denton, C. ....Rochester
§ DeWeerd, J. H. ....Rochester
§ Diessner, G. R. ....Rochester
§ Dillard, P. G., Jr. ....
Hickory Corners, Mich.
‡ Doane, J. C. ....Rochester
§ Dockerty, M. B. ....Rochester
§ Dodge, H. W., Jr. ....Rochester
Doerr, John C. ....Rochester

Donald, T. C., Jr. ......Anniston, Ala
† Donin, J. F. ....Rochester
§ Donoghue, F. E. ....Rochester
§ Dornberger, G. R. ....Rochester
§ Douglass, B. E. ....Rochester
† Drake, F. A. ....Lanesboro
† Drips, D. G. ....Rochester
§ Dry, T. J. ....Rochester
Duncan, D. K. ....Rochester
§ Dunlap, R. W. ....Rochester
§ Eaton, L. M. ....Rochester
§ Ede, Mitchell ....Rochester
Edwards, J. E. ....Rochester
Eliot, Johan W. ....Rochester
§ Elkins, E. C. ....Rochester
§ Ellis, F. H. ....Rochester
Epperson, D. P. ....Rochester
§ Erich, J. B. ....Rochester
§ Erickson, D. J. ....Rochester
Esser, R. A. ....Rochester
§ Estes, J. E. ....Rochester
§†Eusterman, G. B. ....Rochester
† Evarts, A. B. ....Rochester
§ Faber, J. E. ....Rochester
Fangman, R. J., Jr. ....
Colorado Springs, Colo.
§ Faulkner, J. W. ....Rochester
§ Ferris, D. O. ....Rochester
Forney, W. D. ....Rochester
Foss, E. L. ....Rochester
§ Frank, L. M. ....Hartford, Conn.
§ Freedman, M. A. ....Rochester
Freedman, R. H. ....Rochester
Freeman, J. G. ....Fergus Falls
† Freyman, J. G. ....Boston, Mass.
§ Fricke, R. E. ....Rochester
§ Fuller, Josiah ....Rochester
Futch, William D. ....Rochester
§†Gambill, C. M. ....Rochester
§ Gambill, E. E. ....Rochester
§ Gastineau, C. F. ....Rochester
Gaunt, W. D. ....Rochester
Geraci, J. E. ....Rochester
§ Ghormley, K. O. ....Rochester
§ Ghormley, R. K. ....Rochester
§ Gibbs, R. P. ....Rochester
§ Giberson, R. G. ....Rochester
§†Giffin, H. Z. ....Rochester
§ Gifford, R. W., Jr. ....Rochester
§ Ginsberg, R. L. ....Rochester
§ Goldstein, N. P. ....Rochester
§ Good, C. A., Jr. ....Rochester
§ Goodlad, J. H. ....Rochester
§ Graham, G. G. ....Rochester
Grattan, R. T. ....Rochester
§ Gray, H. K. ....Rochester
Greene, L. F. ....Rochester
Greene, Wilson ....Rochester
§‡Griffin, G. D. J., Jr. ...Boswell, N. M.
§ Grindlay, J. H. ....Rochester
§ Gross, J. B. ....Rochester
Gulley, J. L. ....Rochester
§ Gustafson, M. B. ....Rochester
§ Habein, H. C. ....Rochester
§ Hagedorn, A. B. ....Rochester
§ Haines, S. F. ....Rochester
§ Hallberg, O. E. ....Rochester
§‡Hallenbeck, D. F. ....Rochester
§ Hallenbeck, G. A. ....Rochester
§ Hanlon, D. G. ....Rochester
§ Hanson, H. H. ....Houston, Tex.
§ Hanson, N. O. ....Rochester
‡ Hanson, S. M. ....Sparta, Wis.
§ Harrington, S. W. ....Rochester
§ Harris, L. E. ....Rochester
§ Hauch, E. W. ....Pomona, Calif.
§ Havens, F. Z. ....Rochester
Havens, F. Z., Jr. ....Rochester
§ Healy, M. M. .....Washington, D. C.
Heck, F. J. ....Rochester
§†Heilman, D. M. H. ....Rochester
§ Heilman, F. R. ....Rochester
Helden, R. A. ....Rochester
† Helland, G. M. ....Spring Grove
† Helland, J. W. ....Spring Grove
§†Helmholz, M. F. ....Rochester
§†Hempstead, B. E. ....Rochester
§ Henderson, E. D. ....Rochester
§ Henderson, J. W. ....Rochester
§†Henderson, M. S. ....Rochester
§ Herbert, C. M., Jr. ....Rochester
§ Herrell, W. E. ....Rochester
§ Hetrick, M. A. ....Rochester
† Hewitt, Edith ....Rochester
§†Hewitt, R. M. ....Rochester
§†Heyerdale, O. C. ....Rochester
§ Hightower, N. C., Jr. ......Rochester
§ Hill, T. R. ....Rochester
§ Hillsabeck, J. R. ....Rochester
§ Hines, C. R., Jr. ....Rochester
§ Hodgson, J. R. ....Rochester
Hogben, Chas. A. M. ......Rochester
§ Hoffman, M. S. ....Rochester

Hollenhorst, R. W. ....Rochester
§ Holman, C. B. ....Rochester
§‡Holt, A. H. ....Rochester
Hood, L. T. ....Rochester
§ Hood, R. T. ....Rochester
Horton, B. T. ....Rochester
§ Howell, Llewelyn P. ....Rochester
Hubbard, Theodore F. .....Rochester
§ Hubler, W. L. ....Caldwell, Idaho
§ Huizenga, K. A. ....Rochester
§ Hunt, A. B. ....Rochester
§ Hunt, William ....Rochester
§ Hunter, J. S. ....Rochester
§ Hunter, R. C. ....Rochester
§ Ivins, J. C. ....Rochester
§ Ivy, J. H. ....Rochester
§ Jackman, R. J. ....Rochester
James, J. W. ....Rochester
§ Jampolis, R. W. ....Rochester
§ Janes, J. M. ....Rochester
Johnson, Adelaide McF. ...Rochester
§ Johnson, C. E. ....Rochester
Johnson, C. M., Jr. ....Rochester
§ Johnson, D. A. ....Rochester
Johnson, D. S. ....Rochester
Johnson, Einer W. ....Rochester
§ Johnson, H. A. ....Rochester
§ Johnson, H. W. ....Rochester
Johnson, R. B. ....Lanesboro
§ Johnson, W. E. ....Rochester
§‡Jones, George W. ....
Ft. Leavenworth, Kan.
Jones, R. F. ....Rochester
Jones, Rabecliff V. ....Rochester
Jordan, G. L., Jr. ....Rochester
§ Josselson, A. J. ......Alhambra, Calif.
§ Joyce, G. L. ....Rochester
§ Judd, E. S., Jr. ....Rochester
Karlen, Markle ....Rochester
Kearns, T. P. ....Rochester
§ Keating, F. R., Jr. ....Rochester
§ Keith, H. M. ....Rochester
§†Keith, N. M. ....Rochester
Kelly, A. H. ....Rochester
§ Kennedy, R. L. J. ....Rochester
Kennedy, T. V. A. ....Rochester
§ Kenney, F. D. ....Rochester
Kent, George B., Jr. ....Rochester
§ Kernohan, J. W. ....Rochester
§ Kiely, J. M. ....Rochester
Kiely, J. P. ....Rochester
§ Kierland, R. R. ....Rochester
§ Kirklin, B. R. ....Rochester
§ Kirklin, J. W. ....Rochester
§ Kleckner, M. S. ....Rochester
Knight, C. D. ....Shreveport, La.
Knutson, L. A. ....Spring Grove
§ Knutson, R. C. ....Rochester
Knutson, K. H. ....Rochester
§ Koelsche, G. A. ....Rochester
§ Kroboth, F. J., Jr. ....Rochester
§‡ Krout, R. M. ....Rochester
§ Krusen, F. H. ....Rochester
§ Kunkel, Wm. M., Jr. ......Rochester
§ Kvale, W. F. ....Rochester
§ Lake, C. F. ....Rochester
§ Lamp, C. B., Jr. ....Rochester
§ Lay, C. L. ....Rochester
Larrabee, W. F. ....Rochester
§ Lazarte, J. A. ....Rochester
§ Leddy, E. T. ....Rochester
§†Lemon, W. S. .....Clifton Falls, Va.
† Lewis, B. L. ....Rochester
§ Lick, L. C. ....Rochester
§ Lillie, H. I. ....Rochester
§ Lipscomb, P. R. ....Rochester
‡ Liss, H. R. ...San Francisco, Calif.
§ Litin, E. M. ....Rochester
§ Livermore, G. R. ....Memphis, Tenn.
§†Logan, Archibald, H. .....Rochester
§ Logan, G. B. ....Rochester
§ Longley, J. R. ....Rochester
§ Longo, V. J. ....Rochcester
§ Love, J. G. ....Rochester
§ Lucas, J. E. ....Saint Paul
§ Lundy, J. S. ....Rochester
Lyons, Henry R. ....Rochester
§ MacCarty, C. S. ....Rochester
§†MacCarthy, W. C. ....Rochester
§ MacFarlane, E. B. ....Rochester
§ MacKenzie, D. A. ....Rochester
MacKinnon, H. N. ....Rochester
§ Madison, M. S. ....Rochester
§ Magath, T. B. ....Rochester
Manger, W. M. ....Rochester
Mandeville, J. E. ....Rochester
§‡Mankin, H. W. ....Rochester
§†Mann, F. C. ....Rochester
Mann, F. D. ....Rochester
§ Mann, R. H. ....Rochester
Manning, P. R. ....Rochester
§ Markle, G. B., IV ....Rochester
§ Martens, T. G. ....Rochester

§ Martin, G. M. .... Rochester
§ Martin, W. J. .... Rochester
§†Masson, J. C. .... Rochester
§ Masson, J. K. .... Rochester
Mathieson, D. R. .... Rochester
§ Maxeiner, S. R., Jr. .... Rochester
Mayne, J. G. .... Rochester
Maxwell, J. P. .... Rochester
§ Mayo, C. W. .... Rochester
McBean, J. B. .... Rochester
§ McBurney, R. P. .... Nopeming
McCarran, S. P. .... Rochester
McConahey, W. M., Jr. .... Rochester
§ McDonald, J. R. .... Rochester
‡ McFarlane, J. A. .... Rochester
McIntire, S. F. .... Rochester
McKaig, C. B. .... Pine Island
§ McMorris, R. O. .... Rochester
§ McNeill, J. I. .... Rochester
§ McWhorter, H. E. .... Rochester
Menges, Charles G. H. .... Rochester
§ Merritt, W. A. .... Rochester
Michael, Isaac E. .... Rochester
‡ Miller, J. M. .... Indiana
§ Miller, R. D. .... Rochester
Miller, R. H. .... Rochester
§ Mills, S. D. .... Rochester
Minno, Alexander M. .... Rochester
§ Moersch, F. P. .... Rochester
§ Moersch, H. J. .... Rochester
§ Monsour, K. J. .... Rochester
§ Montgomery, Hamilton .... Rochester
§ Morlock, C. G. .... Rochester
Morris, K. L. .... Rochester
§‡Morton, G. H. ....Scott Air Base, Ill.
Mulder, D. W. .... Rochester
Mussey, Mary E. .... Rochester
§ Mussey, W. C. .... Rochester
‡ Myers, C., III ....San Antonio, Tex.
§ Meyers, T. T. .... Rochester
§ Myers, W. P. L. .... Rochester
‡ Myre, T. T. .... Paducah, Ky.
Nehring, J. P. .... Preston
Neuman, H. W. .... Rochester
Norris, N. T. .... Caledonia
§ O'Cain, R. K. .... Rochester
§ O'Leary, P. A. .... Rochester
§ O'Shaughnessy, E. J. .... Rochester
§ Odel, H. M. .... Rochester
Ogburn, Paul L. .... Rochester
§ Olive, J. T., Jr. .... Rochester
§ Olsen, A. M. .... Rochester
Olson, E. A. .... Pine Island
Olson, G. E. .... West Concord
Onsgard, L. K. .... Houston
§ Openshaw, C. R. .... Rochester
§ Osborn, J. E. .... Rochester
§ Osterholm, R. S. .... Rochester
§ Owen, H. W. .... Rochester
Parker, H. L. .... Rochester
§ Parker, R. L. .... Rochester
Parkhill, E. M. .... Rochester
Parkin, Thomas W. .... Rochester
§ Parsons, W. B., Jr. .... Rochester
Patrick, Robert T. .... Rochester
Paulley, H. F. .... Rochester
§ Paulson, J. A. .... Rochester
§ Paynter, C. R. .... Rochester
Pease, G. L. .... Rochester
Pemberton, A. H. .... Rochester
§ Perry, Harold .... Rochester
§ Peters, G. A. .... Rochester
§ Petersen, M. C. .... Rochester
Peterson, W. H. .... Spring Valley
§ Phares, W. S. .... Rochester
† Piper, M. C. .....La Canada, Calif.
§ Pool, T. L. .... Rochester
§ Post, D. B. .... Rochester
Powers, W. W. .... Rocehster
§ Prangen, A. D. .... Rochester
Pratt, G. F. .... Rochester
§ Pratt, J. H., Jr. .... Rochester
Price, Richard D. .... Rochester
§ Prickman, L. E. .... Rochester
§ Priestley, J. T. .... Rochester
§ Pruitt, R. D. .... Rochester
§ Pugh, D. G. .... Rochester
Purcell, Howard M. .... Rochester
Pyle, M. M. .... Cannon Falls
§ Quer, E. A. .... Rochester
† Rabens, R. A. .... Rochester
§ Ralston, D. E. .... Rochester
§ Randall, L. M. .... Rochester
§ Rasmussen, W. C. .... Rochester
Reese, G. A. .... Rochester
Reitemeier, R. J. .... Rochester
§ Reiter, R. A. .... Rochester
ReMine, P. G. .... Rochester
§ ReMine, W. H., Jr. .... Rochester
§‡Retter, Richard ..Fort Custer, Mich.
Rice, R. G. .... Grand Is., Neb.
§ Ridley, R. W. .... Rochester
‡ Rigler, R. G. ......Portsmouth, Va.
§ Risser, A. F. .... Stewartville
§ Rogue, W. G. .... Spring Grove
§ Rome, H. P. .... Rochester
§ Romness, J. O. .... Rochester
§ Rooke, E. D. .... Rochester
§ Rosin, J. D. .... Rochester
Rotnem, O. M. .... Harmony
§ Routley, E. F. .... Rochester
§ Rovelstad, R. A. .... Rochester
§ Rucker, C. W. .... Rochester
§ Rushton, J. G. .... Rochester
§ Rusted, Ian .... Rochester
§ Rynearson, E. H. .... Rochester
Saidy, John T. .... Rochester
§ Salassa, R. M. .... Rochester
§†Sanford, A. H. .... Rochester
§ Saunders, B. H., Jr. .... Rochester
Sayre, G. P. .... Rochester
§ Scanlon, P. W. .... Rochester
§ Scheidel, A. M. ....Aberdeen, S. D.
§ Scheifley, C. H. .... Rochester
§ Schell, R. F. .... Rochester
Scherman, Q. .... Rochester
§ Schick, R. M. .... Rochester
§ Schmidt, H. W. .... Rochester
‡ Schocket, Everett ......Dayton, Ohio
§ Scholz, D. A. .... Rochester
Schweinfurth, J. D. .... Rochester
Schweinfurth, J. P. .... Rochester
§ Scribner, B. H. .... Rochester
§ Scudamore, H. H. .... Rochester
Seagle, J. B. .... Rochester
§ Seldon, T. H. .... Rochester
§ Shands, W. C. .... Houston, Tex.
§ Sholl, P. R. .... Rochester
‡ Siekert, R. G. .....Philadelphia, Pa.
§ Siemon, Glenn ......Bakersfield, Calif.
Simmons, W. H. .... Rochester
§ Simonton, K. M. .... Rochester
Skaug, H. M. .... Chatfield
§ Slocumb, C. H. .... Rochester
Smith, C. F. .... Rochester
§†Smith, F. L. .... Rochester
§ Smith, H. L. .... Rochester
§ Smith, L. A. .... Rochester
Smith, M. P. .... Rochester
Smith, R. A. .... Rochester
§ Soule, E. H. .... Rochester
§ Spear, H. C. .... Rochester
§ Spear, I. M. ....Worcester, Mass.
Spencer, B. J. .... Rochester
§ Sprague, R. G. .... Rochester
Steinhilber, R. M. .... Rochester
§ Stickney, J. M. .... Rochester
§ Stilwell, G. G. .... Rochester
Storsteen, K. A. .... Rochester
§ Stroebel, C. F., Jr. .... Rochester
Stuhler, L. G. .... Rochester
Svien, H. J. .... Rochester
Symmonds, R. E. .... Rochester
Taylor, D. E. .... Rochester
Taylor, E. A. .... Rochester
Taylor, Gloria A. .... Rochester
§ Taylor, L. M. .... Rochester
§‡Thelen, E. P. .... Rochester
§ Thompson, G. J. .... Rochester
Thompson, O. H., Jr. .... Rochester
Tihen, E. N. .... Rochester
§ Tillisch, J. H. .... Rochester
Todd, J. W. .... Rochester
§ Tompkins, R. G. .... Rochester
§ Uihlein, Alfred .... Rochester
§ Utz, J. P. .... Rochester
§ Van Herik, Martin .... Rochester
§ Van Patter, Ward .... Rochester
§ Van Vleet, M. E. .... Rochester
§ Vaughn, L. D. .... Rochester
§ Wagener, H. P. .... Rochester
Wakefield, E. G. .... Rochester
§†Wakim, K. G. .... Rochester
§ Walters, Waltman .... Rochester
Wang, Jun-Chuan ..Waterbury, Conn.
§ Ward, L. E. .... Rochester
§ Watkins, C. H. .... Rochester
Wattiker, B. J. .... Rochester
§ Watson, J. R. .... Rochester
‡ Waud, R. E. ....Graighville, Idaho
§ Waugh, J. M. .... Rochester
§ Webb, J. H. .... Rochester
§ Weber, W. E. .....Santa Rosa, Calif.
§ Weed, L. A. .... Rochester
‡ Wehr, M. P. ..Long Island, N. Y.
§ Weir, J. F. .... Rochester
Welch, J. S. .... Rochester
Wellborn, W. H. .... Rochester
§ Wellman, W. E. .... Rochester
Wellner, T. O. .... Rochester
§ Wente, H. A. .... Rochester
§ Westrup, J. E. .... Lanesboro
§ Weyand, R. D. .... Rochester
Wineland, R. E. .... Rochester
§ Wilhelm, W. F. .... Rochester
‡§Williams, L. B. .... Germany
† Williams, R. R. .... Rochester
† Williams, R. V. .... Rushford
§ Willius, F. A. .... Rochester
Willson, J. D. ....
Carmel by the Sea, Calif.
§ Wilson, R. B. .... Rochester
Wilson, T. W. .... Rochester
§ Wilson, V. O. .... Rochester
Winchester, Elsie C. .... Rochester
Winchester, W. W. .... Rochester
Winterringer, J. R. .... Rochester
† Wittchow, A. W. .... Rochester
§ Woltman, H. W. F. .... Rochester
§†Wood, Harry G. .... Rochester
Wolff, John M. .... Rochester
§ Woolner, L. B. .... Rochester
§ Wright, S. M. .... Rochester
Wuest, J. H. .... Rochester
§ Young, H. H. .... Rochester
Zeller, W. W. .... Rochester
Zimmer, F. E. .... Rochester

PARK REGION DISTRICT AND COUNTY MEDICAL SOCIETY

Douglas, Grant, Otter Tail and Wilkin Counties
Regular meeting date, last Wednesday even numbered months
Annual meeting, December
Number of Members—56

President
Mouritsen, G. J. ......Fergus Falls

Secretary
Lewis, C. W. .... Henning

§ Arndt, H. W. ....Detroit Lakes
*§Baker, A. C. .... Fergus Falls
Baker, J. L. .... Fergus Falls
§ Baker, N. H. .... Fergus Falls
Bergquist, K. E. .... Battle Lake
Bigler, E. E. .... Perham
Bigler, I. E. .... Perham
† Blakey, A. R. .... Osakis
§ Boline, C. A. .... Battle Lake
§ Boyd, L. M. .... Alexandria
† Boysen, Peter .... Bemidji
Cain, J. H. .... Hoffman
§ Carlson, C. E. .... Alexandria
§ Clifford, G. W. .... Alexandria
§ Combacker, L. C. ......Fergus Falls
§ Daehlin, Rolf .... Fergus Falls
§ Emerson, E. E. .... Osakis
§ Estrem, C. O. .... Fergus Falls
§ Estrem, R. D. .... Fergus Falls
Estrem, R. L. .... Fergus Falls
Hanson, E. C. ....New York Mills
Harris, Evelyn S. ....Fergus Falls
*§†Haskell, A. D. .... Alexandria
§ Heiberg, E. A. .... Fergus Falls
§ Helseth, H. K. ....Pelican Rapids
Hom, Leong Y. W. ....Battle Lake
§ Jacobson, C. W. ....Breckenridge
§ Kevern, J. L. .... Henning
§ Korda, H. A. ....Pelican Rapids
Leibold, H. H. ......Parkers Prairie
§ Lewis, A. J. .... Henning
§ Lewis, C. W. .... Henning
Love, F. A. .... Carlos
§ Lund, C. J. T. ....Fergus Falls
Mortensen, N. G. ....Minneapolis
§ Mouritsen, G. J. ......Fergus Falls
§ Naegeli, F. .... Fergus Falls
§ O'Brien, L. T. ....Breckenridge
Ostergaard, Erling ......Evansville
Parson, Lillian B. ......Elbow Lake
Parson, L. R. .... Elbow Lake
Patterson, W. L. ......Fergus Falls
§ Paulson, T. S. ....Fergus Falls
Randall, A. M. .... Ashby

Richter, E. H. ....Fergus Falls
† Satersmoen, Theo ....Pelican Rapids
Sather, E. R. ....Alexandria
§ Schamber, W. F. ....Parkers Prairie
Schoeneberger, P. B. ....Perham
§ Stemsrud, H. L. ....Alexandria
Sutton, H. R. ....Hoffman
Thompson, H. B. ....St. Cloud
Warner, J. J. ....Perham
§ Wasson, L. F. ....Alexandria
‡§Weyhrauch, R. A. ....Phoenix, Ariz.
† Wray, W. E. ....Campbell

RAMSEY COUNTY MEDICAL SOCIETY

Regular meetings, last Monday in every month excepting June, July, August
Annual meeting, last Monday in January
Number of Members--464

President
Medelman, J. P. ....Saint Paul

Secretary
Hilger, L. D. ....Saint Paul

§ Adair, A. F., Jr. ....Saint Paul
§ Aherns, A. H. ....Saint Paul
§ Aherns, A. E. ....Saint Paul
Ahrens, R. M. ....Saint Paul
§ Anderson, R. W. ....Saint Paul
§†Alden, J. F., Jr. ....Saint Paul
§ Arnquist, A. S. ....Saint Paul
§ Arny, F. P. ....Saint Paul
§ Arzt, P. K. ....Saint Paul
§ Aurelius, J. R. ....Saint Paul
*§†Ausman, C. F. ......So. Saint Paul
§ Ausman, D. R. ....Saint Paul
§ Babb, Frank S. ....Saint Paul
§ Bacon, D. K. ....Saint Paul
§ Balcome, M. M. ....Saint Paul
Barnett, J. M. ....Saint Paul
Baronofsky, I. D. ......Minneapolis
§ Barry, L. W. ....Saint Paul
† Barsness, N. O. N. ......Saint Paul
Bauer, D. D. ....Saint Paul
Bauer, E. L. ....Saint Paul
§†Beals, Hugh ....Saint Paul
§ Beech, R. H. ....Saint Paul
§ Beek, H. O. ....Saint Paul
Beer, J. J. ....Saint Paul
§ Bell, C. C. ....Saint Paul
Bellomo, James ..New York, N. Y.
§ Benepe, J. L. ....Saint Paul
† Bennion, P. H. ....Isway, Mont.
§ Bentley, N. P. ....Saint Paul
§ Bernstein, Wm. C. ....Saint Paul
§ Bicek, J. F. ....Saint Paul
† Binger, H. E. ......Phoenix, Ariz.
Black, E. J. ....Saint Paul
§ Bock, R. A. ....Saint Paul
† Boeckman, Egil ....Saint Paul
§ Bolender, H. L. ....Saint Paul
§ Borg, J. F. ....Saint Paul
† Bouma, L. R. ....Saint Paul
§ Brand, G. D. ....Saint Paul
Bray, E. R. ....Saint Paul
§ Briggs, John F. ....Saint Paul
§ Broadie, T. E. ....Saint Paul
§ Brodie, W. D. ....Saint Paul
Brotchner, R. J. .Sherman Oaks, Cal.
† Brown, J. C. ....Saint Paul
Bulinski, T. J. ....Saint Paul
§ Burch, E. P. II ....Saint Paul
† Burch, F. E. ....Saint Paul
§ Burklund, E. D. ....Saint Paul
§ Burlingame, D. A. ......Saint Paul
§ Burns, R. M. ....Saint Paul
Burton, C. G. ....Saint Paul
§ Bush, R. P. ....Saint Paul
§ Busher, H. H. ....Saint Paul
§ Cain, C. L. ....Saint Paul
Callahan, F. F. ....Saint Paul
§ Carley, W. A. ....Saint Paul
§ Carroll, W. C. ....Saint Paul
§ Chadbourn, C. R. ....Saint Paul
§ Chatterton, C. C. ....Saint Paul
§ Christiansen, A. ....Saint Paul
‡ Christensen, Mentor .....Mississippi
§ Clark, H. B., Jr. ......Minneapolis
§ Cochrane, B. B. ....Saint Paul
Coddon, W. D. ....Saint Paul
Cohen, Ellis N. ....Saint Paul
§ Colby, W. L. ....Saint Paul
§ Cole, W. H. ....Saint Paul
Coleman, John ....Saint Paul
† Collie, H. G. ....St. Petersburg, Fla.
§ Connolly, C. J. ....Saint Paul
§ Connor, C. E. ....Saint Paul
§ Cook, C. K. ....Saint Paul
§ Cooper, C. C. ....Saint Paul
§ Countryman, R. S. ......Saint Paul
§ Craig, D. M. ....Saint Paul
Critchfield, L. R. ....Saint Paul
Crombie, F. J. ......No. Saint Paul
Crowley, J. H. ....Saint Paul
‡ Crudo, V. D........Ft. Bragg, N. C.
§ Crump, J. W. ....Saint Paul
§ Culligan, J. M. ....Saint Paul
§ Culver, L. G. ....Saint Paul

Dawson, J. R. ....Saint Paul
Day, Lois A. ....Saint Paul
Decker, C. H. ....Saint Paul
§ Derauf, B. I. ....Saint Paul
§ Deters, D. C. ....Saint Paul
† Dickson, T. H. ....Saint Paul
Donohue, P. F. ....Saint Paul
§ Drake, C. B. ....Saint Paul
Duerr, E. E. ....Saint Paul
§ Dunn, J. N. ....Saint Paul
§ Earl, G. A. ....Saint Paul
§ Earl, J. R. ....Saint Paul
§ Edlund, Gustaf ....Saint Paul
Edwards, J. W. ....Saint Paul
Edwards, L. G. ....Saint Paul
§ Edwards, T. J. ....Saint Paul
§ Eginton, C. T. ....Saint Paul
Ely, O. S. ....So. Saint Paul
§ Emerson, E. C. ....Saint Paul
§ Emmons, R. W. ....Saint Paul
§ Endress, E. K. ....Saint Paul
Enroth, O. E. ....Saint Paul
† Ernest, G. C. H. St. Petersburg, Fla.
§ Ersfeld, M. P. ....Saint Paul
† Eshelby, E. C. ....Saint Paul
Evert, J. A., Jr. ....Saint Paul
† Fahey, E. W. ....Saint Paul
Farkas, J. V. ....Saint Paul
Fee, J. G. ....Saint Paul
Felion, A. J. ....Saint Paul
§†Ferguson, J. C. ....Saint Paul
§ Fesler, H. H. ....Saint Paul
Field, A. H. ....Farmington
Fink, D. L. ....Saint Paul
§ Fisher, D. W. ....Saint Paul
§ Flanagan, H. F. ....Saint Paul
§ Flannery, H. F. ....Saint Paul
Flynn, L. L., Jr. ....Saint Paul
§ Fogarty, C. W., Jr. ......Saint Paul
† Fogarty, C. W. ....Saint Paul
§ Fogelberg, E. J. ....Saint Paul
§ Foley, F. E. B. ....Saint Paul
Forsythe, J. R. ....Saint Paul
*†Freeman, C. D....Balsam Lake, Wisc.
Freeman, C. D., Jr. ....Saint Paul
Freeman, G. I. ....Saint Paul
Friedman, L. L. ....Saint Paul
§ Fritz, W. L. ....Saint Paul
§ Froats, C. W. ....Saint Paul
§ Fuller, B. F..............Saint Paul
Furnell, D. Q. ....Saint Paul
§ Garbrecht, A. W. ....Saint Paul
Gardiner, D. G. ....Saint Paul
§ Gardner, W. P. ....Saint Paul
Garrow, D. M. ....Saint Paul
§ Gehlen, J. N. ....Saint Paul
§ Ghent, C. H. ....Saint Paul
§ Gibbs, E. C. ....Saint Paul
Gilkey, S. E. ....Saint Paul
§ Gillespie, D. R. ....Saint Paul
§ Gleason, W. A. ....Saint Paul
Goldsmith, J. W. ....Saint Paul
§†Goltz, E. V. ....Saint Paul
Goltz, N. F. ....Saint Paul
Goltz, R. W. ....Minneapolis
§ Grant, H. W. ....Saint Paul
§ Gratzek, Thos. ....Saint Paul
§ Grau, R. K. ....Saint Paul
† Gruenhagen, A. P. ....Saint Paul
Hall, Bernard ....Saint Paul
§ Hammes, E. M. ....Saint Paul
§ Hammes, E. M., Jr. ....Saint Paul
Hammond, J. F. ....Saint Paul
§ Hanson, H. B. ....Saint Paul
Harbaugh, John ....Saint Paul
§ Harmon, G. E. ....Saint Paul
§ Hartfiel, W. F. ....Saint Paul
Hartig, Marjorie ....Saint Paul
§ Hartley, E. C. ....Saint Paul
*§Hassett, M. F............Saint Paul
§ Hauser, V. P. ....Saint Paul
§ Hayes, A. F. ....Saint Paul
§ Heck, W. W. ....Saint Paul
Hedenstrom, F. G. ......Saint Paul
Henderson, A. J. G...No. Saint Paul
§ Hengstler, W. H. ....Saint Paul
§ Hensel, C. N. ....Saint Paul
Herman, S. M. ....Saint Paul
§ Heron, R. C. ....Saint Paul

§ Herrmann, E. T. ....Saint Paul
Hertz, M. J. ....Saint Paul
§†Hilger, A. W. ....Saint Paul
§ Hilger, J. A. ....Saint Paul
§ Hilger, L. D. ....Saint Paul
Hin ker, L. P. ....Saint Paul
§ Hochfilzer, J. J. ....Saint Paul
Hodgson, J. E. ....Saint Paul
† Holcomb, O. W. ....Saint Paul
§ Hollinshead, W. H. ......Saint Paul
§ Holmen, R. W. ....Saint Paul
§ Holt, J. E. ....Saint Paul
† Hopkins, G. W. ....Saint Paul
Howard, M. A. ....Saint Paul
Howard, W. S. ....Saint Paul
§ Howe, N. W. ....Saint Paul
§ Hullsiek, H. E. ....Saint Paul
§ Hullsiek, R. B. ....Minneapolis
§ Hultgen, W. J. ....Saint Paul
Hunter, M. H. ....Saint Paul
§ Hurwitz, M. M. ....Saint Paul
§†Ide, Arthur W............Saint Paul
Ikeda, Kano ....Saint Paul
Ingerson, C. A. ....Saint Paul
Jarvis, M. A. ....Saint Paul
Jesion, J. W. ....Saint Paul
§ Johanson, W. G. ....Saint Paul
§†Johnson, C. E. ....Saint Paul
Johnson, D. E. ......So. Saint Paul
§ Jones, E. Mendelssolm ....Saint Paul
Jones, R. H. ....Minneapolis
§ Kamman, G. R. ....Saint Paul
Kaplan, D. H. ....Saint Paul
Karon, I. M. ....Saint Paul
§ Kasper, E. M. ....Saint Paul
‡ Katz, L. J. ......Long Beach, Calif.
Kavitt, H. H. ......Portland, Ore.
Keefe, R. E. ....Saint Paul
§ Kelly, J. V. ....Saint Paul
§ Kelsey, C. M. ....Saint Paul
§ Kenefick, E. V. ....Saint Paul
*§†Kennedy, W. A. ....Saint Paul
§ Kenyon, T. J. ....Saint Paul
§ Kesting, Herman ....Saint Paul
† King, G. L. ....Saint Paul
§ Klein, H. N. ....Saint Paul
§ Knutson, G. E. ....Saint Paul
Koza, D. N. ....Saint Paul
Krezowski, Thomas ....Saint Paul
§ Kugler, A. A. ....Saint Paul
§ Kuske, A. W. ....Saint Paul
Kvitrud, Gilbert ....Saint Paul
§ Lannin, B. G. ....Saint Paul
§ Lannin, D. R. ....Saint Paul
† Larsen, C. L. ....Saint Paul
Larson, Eva-Jane ....Saint Paul
Larson, J. T. ....So. Saint Paul
Larson, K. R. ....Saint Paul
Larson, M. L. ....Saint Paul
Lax, Morris H. ....Saint Paul
§ Leahy, Bartholomew .....Saint Paul
§ Leavenworth, R. O. ......Saint Paul
Lee, N. J. ....Tracy
§ Leick, R. M. ....Saint Paul
§ Leitch, Archibald ....Saint Paul
§ Lepak, J. A. ....Saint Paul
† Lerchie, Wm. ....Cable, Wisc.
§ Leven, N. L. ....Saint Paul
§ Leverenz, C. W. ....Saint Paul
Levin, B. G. ....Saint Paul
Levitt, George X. ....Saint Paul
§ Lick, C. L. ....Saint Paul
Lick, Wm. J., Jr. ......Saint Paul
Lieberman, M. S. ....So. Saint Paul
§ Lien, R. J. ....Saint Paul
Lightbourn, E. L. ....Saint Paul
Lilleberg, N. J. ....Saint Paul
Lindell, Robt. ....Saint Paul
§ Lippman, H. S. ....Saint Paul
§ Loken, S. M. ....Saint Paul
Lowe, E. R. ....So. Saint Paul
Lowe, T. A. ....So. Saint Paul
§ Lundholm, A. M. ....Saint Paul
§ Lynch, F. W. ....Saint Paul
Mackoff, S. M. ....Saint Paul
§ Madden, J. F. ....Saint Paul
Madland, R. S. ....Saint Paul
Maertz, Wm. F. ....Saint Paul
§ Malerich, J. A. ......W. Saint Paul

	Marks, R. W.	Saint Paul
	Martin, D. L.	Saint Paul
§	Martineau, J. L.	Saint Paul
	Matchar, G. R.	Saint Paul
§	McCabe, J. S.	Saint Paul
	McCain, D. L.	Saint Paul
	McCarthy, J. J.	Saint Paul
	McCarthy, Wm. R.	Saint Paul
	McClanahan, J. H.	White Bear Lake
	McClanahan, T. S.	White Bear Lake
§	McCloud, C. N.	Saint Paul
§	McEwan, Alexander	Saint Paul
§	McGroarty, B. J.	Saint Paul
	McKenzie, E. E.	Saint Paul
†	McLaren, J. M.	Minneapolis
§	Meade, J. R.	Saint Paul
§	Mears, B. J.	Saint Paul
§	Medelman, J. P.	Saint Paul
	Melancon, J. F.	Saint Paul
	Menold, Wm. F.	Saint Paul
	Merner, T. B.	Faribault
	Merrick, R. L.	Saint Paul
§†	Meyerding, E. A.	Saint Paul
	Michienzi, L. J.	Saint Paul
	Miller, Wm. T.	W. Saint Paul
	Miller, Z. R.	Saint Paul
	Milnar, F. J.	Saint Paul
§	Moga, John A.	Saint Paul
	Molander, H. A.	Saint Paul
†	Moquin, M. A.	Saint Paul
†	Moren, J. A.	Saint Paul
	Moriarty, Bernice	Saint Paul
	Moriarty, Cecile R.	Saint Paul
§	Muller, A. E.	No. Saint Paul
§	Muller, R. T.	Saint Paul
	Mundahl, H. P.	Saint Paul
§	Murphy, J. T.	Saint Paul
	Naegeli, A. E.	Port Beach, Calif.
§	Nash, L. A.	Saint Paul
†	Nelson, L. A.	Saint Paul
	Nimlos, K. O.	Saint Paul
†	Nimlos, L. O.	Saint Paul
§	Noble, J. F.	Saint Paul
§	Noble, J. L.	Saint Paul
	Nye, Katherine A.	Saint Paul
	Nye, Lillian L.	Saint Paul
	O'Brien, J. C.	Saint Paul
§	O'Connor, L. J.	Saint Paul
	O'Kane, T. W.	Saint Paul
	O'Malley, V.	Saint Paul
	O'Reilley, B. E.	Saint Paul
§	Ockuly, Orville	Saint Paul
§	Ogden, Warner	Saint Paul
§	Ohage, Justus	Saint Paul
§	Olsen, R. L.	Saint Paul
	Olson, C. A.	Saint Paul
§	Ostergren, Edw. W.	Saint Paul
§	Ouellette, A. J.	Saint Paul
§	Owens, F. M., Jr.	Saint Paul
	Pearson, F. R.	Saint Paul
§	Pearson, M. M.	Saint Paul
	Pedersen, A. H.	Saint Paul
	Peterson, D. B.	Saint Paul
§	Peterson, H. O.	Saint Paul
§	Peterson, D. H.	Saint Paul
	Peterson, J. L. E.	Saint Paul
§†	Plondke, F. J.	Saint Paul
§	Plotke, H. L.	Saint Paul

	Polski, P. G.	So. Saint Paul
*§†	Prendergast, H. J.	Saint Paul
	Quattlebaum, Frank	Saint Paul
§	Ralph, J. R.	Saint Paul
†	Ramsey, W. R.	Saint Paul
	Rasmussen, R. C.	Saint Paul
	Ravits, H. G.	Saint Paul
§	Rea, Charles E.	Saint Paul
	Reid, James W.	Saint Paul
§	Richards, E. T. F.	Saint Paul
	Richardson, E. J., Jr.	Saint Paul
§	Richardson, R. J.	Saint Paul
	Rick, Paul F. W.	Saint Paul
	Rinkey, Eugene	Saint Paul
§	Ritchie, W. P.	Saint Paul
§	Ritt, A. E.	Saint Paul
	Robinson, C. O.	Saint Paul
§	Rogers, S. F.	Saint Paul
	Rogin, Norton	Farmington
	Rolig, D. H.	Saint Paul
	Rollie, O. O.	Saint Paul
	Rosenholtz, B. I.	Saint Paul
§	Rosenthal, Robert	Saint Paul
§	Roth, G. C.	Saint Paul
§	Rothschild, H. J.	Saint Paul
§	Roy, Phil C.	Saint Paul
†	Ruhberg, Geo. N.	Tarzona, Calif.
	Rukovina, John	Saint Paul
§	Ryan, James D.	San Diego, Calif.
§	Ryan, John J.	Saint Paul
§	Ryan, Jos M.	Saint Paul
	Sandeen, R. M.	Buffalo
§	Sarnecki, M. M.	Saint Paul
†	Satterlund, V. L.	Saint Paul
§†	Savage, F. J.	Saint Paul
§	Schmidtke, R. L.	Saint Paul
	Schoch, R. B. J.	Saint Paul
§	Schons, Edward	Saint Paul
§	Schroeckenstein, H. F.	Saint Paul
§†	Schuldt, F. C.	Saint Paul
§	Schulze, A. G.	Saint Paul
	Schumacker, J. W.	Saint Paul
§	Schwyzer, H. C.	Saint Paul
§	Scott, E. E.	Saint Paul
	Sekhon, M. S.	Saint Paul
†	Senkler, G. E.	Saint Paul
§	Setzer, H. J.	Saint Paul
	Shannon, Wm. R.	Saint Paul
†	Shellman, J. L.	Pacific Palisades, Calif.
§‡	Shimonek, S. W.	Great Lakes, Ill.
	Short, Jacob	Saint Paul
§	Sickels, E. W.	Saint Paul
	Siegel, Clarence	Saint Paul
	Siegel, S. C.	Saint Paul
§	Simons, L. T.	Saint Paul
	Singer, B. J.	Saint Paul
§	Skinner, Abbott	Saint Paul
†	Skinner, H. O.	Saint Paul
§	Smisek, E. A.	Saint Paul
	Smith, R. E.	Saint Paul
§	Smith, V. D. E.	Saint Paul
§	Snyder, Geo. Wm.	Saint Paul
§	Sohlberg, O. I.	Saint Paul
	Sommers, Ben	Saint Paul
§	Sorem, M. B.	Saint Paul
	Soucheray, P. H.	Saint Paul
§	Souster, B. B.	Saint Paul

§†	Sprafka, J. L.	Saint Paul
§	Sprafka, J. M.	Saint Paul
	Sowada, E. J.	Saint Paul
§	Steinberg, C. L.	Saint Paul
§	Sterner, D. C.	Saint Paul
§	Sterner, E. G.	Saint Paul
§	Sterner, E. R.	Saint Paul
§	Sterner, J. J.	Saint Paul
	Stewart, Alexander	Saint Paul
§	Stolpestad, A. H.	Saint Paul
§	Stolpestad, H. L.	Saint Paul
§	Strate, G. E.	Saint Paul
	Straus, M. L.	Saint Paul
§	Strem, E. L.	Saint Paul
§	Sturley, R. F.	Saint Paul
	Swain, F. M.	Saint Paul
	Swanson, J. A.	Saint Paul
	Swanson, L. J.	West Saint Paul
§	Swendson, J. J.	Saint Paul
*	Swanson, R. R.	Saint Paul
*	Teisberg, C. B.	Saint Paul
§	Teisberg, J. E.	Saint Paul
	Thompson, F. A.	Saint Paul
	Thoreson, M. C. Bernice	So. Saint Paul
	Thorsen, D. S.	Saint Paul
	Tiff, C. R.	Saint Paul
§	Tongen, L. A.	Saint Paul
§	Tracht, R. R.	Saint Paul
	Travis, J. S.	Saint Paul
§	Tregilgas, H. R.	So. Saint Paul
	Van Bergen, F. H.	Minneapolis
	Varco, R. L.	Saint Paul
	Veirs, Dean M.	Saint Paul
	Veirs, Ruby J. S.	Saint Paul
§	Venables, A. E.	Saint Paul
	von Amerongen, W. W.	Saint Paul
§	Waas, C. W.	Saint Paul
§	Walker, A. E.	Saint Paul
§	Walsh, Edw. F.	Saint Paul
§	Walter, C. W.	Saint Paul
§†	Ward, Peter D.	Saint Paul
	Warren, C. A.	Saint Paul
	Watson, P. T.	Saint Paul
	Watson, W. H. A.	Saint Paul
§	Watson, W. J.	Newport
	Watz, C. E.	Saint Paul
§	Webber, F. L.	Saint Paul
§	Weis, B. A.	Saint Paul
§	Weisberg, Maurice	Saint Paul
§	Wenzel, G. P.	Saint Paul
	Wesolowski, S. P.	Minneapolis
†	Wheeler, M. W.	Lake Elmo
†	Whitacre, J. C.	Saint Paul
	Williams, A. B.	Saint Paul
§	Williams, C. K.	Saint Paul
§	Williams, J. A.	Saint Paul
	Wilson, J. A.	Saint Paul
§	Wilson, J. V.	Saint Paul
	Winnick, J. B.	Saint Paul
§	Wold, K. C.	Saint Paul
§	Wolff, H. J.	Saint Paul
	Wolkoff, H. J.	Saint Paul
	Word, H. L.	Saint Paul
	Wurdemann, A. L.	White Bear Lake
	Youngren, E. R.	Saint Paul
	Zachman, L. L.	Saint Paul
§	Zimmermann, H. B.	Saint Paul

RED RIVER VALLEY MEDICAL SOCIETY

Kittson, Mahnomen, Marshall, Norman, Pennington, Polk, Red Lake and Roseau Counties
Regular meetings, three—plus extras
Annual meeting, December
Number of Members—72

President

Starekow, M. D. ..Thief River Falls

Secretary

Sather, R. O. ....Crookston

§†	Adkins, C. M.	Thief River Falls
§	Anderson, W. E.	Clearbrook
‡	Behling, F. L.	Moorhead
§	Behr, O. K.	Crookston
	Berge, D. O.	Roseau
	Berlin, A. S.	Hallock
†	Biedermann, Jacob	Thief River Falls
§	Boyer, G. S.	Crookston
§	Boynton, Bruce	Ada
†	Bratrud, Edward	Thief River Falls
	Bratrud, T. E.	Thief River Falls
	Brink, A. A.	Baudette
§	Cameron, J. H.	Crookston
	Carlson, A. E.	Warren
§	Covey, K. W.	Mahnomen
§	Dale, L. N.	Red Lake Falls
	Danford, K. A.	Mahnomen
§	Delmore, J. L.	Roseau
§	Delmore, J. L., Jr.	Roseau
	Delmore, R. J.	Roseau
§	Erickson, Eskil	Halstad
§	Feigal, W. M.	Thief River Falls
	Flancher, L. H.	Crookston
§	Greene, D. E.	Thief River Falls
*†	Hendrickson. R. R.	Crookston
†	Hollands, W. H.	Fisher
§	Holmstrom, C. H.	Warren
	Janecky, A. G.	Baudette
§	Janssen, M. E.	Crookston
	Johnson, H. C.	Thief River Falls
	Johnson, R. E.	Ah-Gwah-Ching
§	Kinkade, B. R.	Ada
†	Kirk, G. P.	East Grand Forks
§	Klefstad, L. H.	Greenbush
	Knutson, G. A.	Hallock
§	Kostick, W. R.	Fertile
§	Loken, Theodore	Ada
	Lynde, O. G.	Los Gato, Calif.
	McKaig, A. M.	Red Lake Falls
	McLane, W. O.	Brainerd
†	Mellby, O. F.	Thief River Falls
§	Mercil, W. F.	Crookston
†	Nelson, H. E.	Crookston
	Nickerson, N. D.	Thief River Falls
	Nietfeld, A. B.	Warren
§	Norman, J. E.	Crookston
	O'Leary, J. H.	Thief River Falls
§	Oppegaard, C. L.	Crookston
§	Oppegaard, M. O.	Crookston
	Pearson, L. O.	Erskine
§	Pohl, D. E.	Crookston
§	Pumala, E. E.	Warren
†	Quigley, W. P.	Brooklyn, N. Y.
§	Reff, A. R.	Crookston
§	Roholt, C. L.	McIntosh
§	Roholt, H. B.	Fosston
†	Rydland, A. D.	Minneapolis
	Sather, E. L.	Fosston
§	Sather, G. A.	Fosston
§	Sather, R. N.	Fosston
§	Sather, R. O.	Crookston
§	Skogerboe, R. B.	Karlstad
	Stadem, Clifford	Twin Valley

§ Starekow, M. D. ..Thief River Falls
§ Stewart, D. E. ....Crookston
‡ Stone, Norman F. ......Chicago, Ill.
† Torgerson, W. B. ....Oklee
§ Uhley, C. G. ....Crookston
§ Van Rooy, G. T. ..Thief River Falls
Walonick, Albert ....Twin Valley
‡ Watson, R. M. ...Camp Rucker, Ala.
† Wiltrout, I. G. ....Oslo

RENVILLE COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of each month
Annual meeting, December
Number of Members—20

President
Knoche, H. A. ....Morgan
Secretary
Hinderaker, H. P. ......Bird Island

§ Alcorn, W. J. ....Wabasso
§ Anderson, C. A. ....Hector
§ Anderson, D. C. ....Olivia
§ Billings, R. E. ....Franklin
§†Brand, W. A. ......Redwood Falls
§ Ceplecha, S. F. ......Redwood Falls
Cosgriff, J. A. ....Olivia
Cosgriff, James A., Jr. ......Olivia
§ Dordal, John ....Sacred Heart
§ Fawcett, A. M. ....Renville
Flinn, T. E. ....Remer
§†Gaines, E. C. ....Buffalo Lake
§ Hinderaker, H. P. ......Bird Island
§ Johnson, O. H. ......Redwood Falls
§ Johnson, W. E. ....Morgan
§ Knoche, H. A., Jr. ....Morgan
Lenz, J. R. ....Morton
‡ McLeod, J. J. ....Japan
Potthoff, C. J. ..Washington, D. C.
Preisinger, J. W. ....Renville

RICE COUNTY MEDICAL SOCIETY

Regular meeting, third Tuesday of every month
Annual meeting, October
Number of Members—35

President
Kolars, J. J. ....Faribault
Secretary
Street, Bernard ....Northfield

Adkins, G. H. ....Sandstone
§ Bruhl, H. H. ....Faribault
§ Buesgens, R. H. ....Waterville
§†Dungay, N. S. ....Northfield
§ Engberg, E. J. ....Faribault
Francis, D. W. ....Morristown
† Hanson, A. M. ....Faribault
§ Hanson, J. W. ....Northfield
† Huxley, F. R. ....Faribault
§ Kennedy, G. L. ....Faribault
§ Kolars, J. J. ....Faribault
§ Kucera, L. B. ....Lonsdale
§ Lende, Norman ....Faribault
Lexa, F. J. ....Lonsdale
§ Maertz, R. W. ....Faribault
§ Mears, R. F. ....Northfield
Meyer, F. C. ....Kenyon
Meyer, P. F. ....Faribault
§ Moses, R. R. ....Kenyon
Navratil, D. R. ....Montgomery
§ Nielson, A. M. ....Northfield
§ Nuetzman, A. W. ....Faribault
§ Orr, Burton A. ....Faribault
Petersen, D. H. ....Northfield
§ Robilliard, C. M. ....Faribault
Rumpf, C. W. ....Faribault
Rysgaard, G. M. ....Northfield
§ Stevenson, F. W. ....Faribault
§ Street, Bernard ....Northfield
§ Studer, D. J. ....Faribault
§ Traeger, C. A. ....Faribault
‡ Utne, J. R. ....Northfield
§ Weaver, P. H. ....Faribault
† Wilkinson, S. L. ....Faribault
§ Wilson, W. E. ....Northfield

ST. LOUIS COUNTY MEDICAL SOCIETY

Carlton, Cook, Itasca, Lake and St. Louis Counties
Regular meetings, second Thursday of each month
Annual meeting, January
Number of Members—243

President
Eckman, P. F. ....Duluth
Secretary
VanRyzin, D. J. ....Duluth

§ Abraham, A. L. ....Duluth
§ Adams, B. S. ....Hibbing
Addy, E. R. ....Gilbert
Ahrens, C. F. ....Duluth
† Arhelger, Stuart ....Minneapolis
§ Arko, J. L. ....Hibbing
§ Athens, Alvin G. ....Duluth
§ Bachnik, F. S. ....Hibbing
§ Backus, R. W. ....Nopeming
§ Bagley, C. M. ....Duluth
Bagley, E. C. ....Duluth
§ Bagley, Wm. R. ....Duluth
§ Baich, V. M. ....Bovey
§ Bakkila, H. E. ....Duluth
§ Bardon, Richard ....Duluth
§ Barker, J. D. ....Duluth
Barney, L. A. ....Duluth
§ Barrett, E. E. ....Duluth
§ Becker, F. T. ....Duluth
§ Benell, O. E. ....Virginia
Bepko, Marie K. ....Cloquet
Berdez, G. L. ....Duluth
§ Bergan, R. O. ....Duluth
§†Bianco, A. J., Jr. ....Duluth
Bianco, A. J. ....Duluth
† Binet, H. E. ....Grand Rapids
§ Blackmore, S. C. ....Biwabik
§ Bloom, J. ....Duluth
Bolz, J. A. ....Grand Rapids
Boman, P. B. ....Duluth
§ Bowen, R. L. ....Hibbing
† Boyer, S. H. ....Duluth
§ Boyer, S. H., Jr. ....Duluth
§ Braun, O. C. ....Grand Rapids
§ Bray, P. N. ....Duluth
‡§Brooker, W. J. ....Duluth
§ Buckley, R. P. ....Duluth
§ Butler, J. K. ....Cloquet
Cantwell, Wm. F...International Falls
Chapman, T. L. ....Duluth
§ Chermak, F. G. ..International Falls
§ Christensen, C. H. ....Duluth
§ Clark, C. L. ....Duluth
Clark, E. A. ....Duluth
§ Clark, I. T. ....Duluth
§ Coll, J. J. ....Duluth
Cope, H. E. ....Virginia
§ Coll, J. J. ....Duluth
† Collins, A. N. ....Moose Lake
§ Conley, F. W. ....Duluth
§†Coventry, Wm. A. ....Duluth
§ Coventry, Wm. D. ....Duluth
Detien, E. D. ....Bigfork
§ Dickson, Franklin H., Jr. ..Proctor
Doyle, G. C. ....Duluth
§ Eckman, P. F. ....Duluth
§ Eckman, R. J. ....Duluth
§†Ekblad, J. Wm. ....Duluth
Eklund, C. D. ....Duluth
§ Elias, Frank J. ....Duluth
§ Emanuel, Karl Wm. ....Duluth
Eppard, R. M. ....Cloquet
Erickson, G. P. ....Hibbing
Erskine, G. N. ....Grand Rapids
§ Estrem, T. A. ....Hibbing
*§Ewens, H. B. ....Virginia
§ Fawcett, K. R. ....Duluth
§ Fellows, M. F. ....Duluth
Ferrell, C. R. ....Grand Rapids
§ Feuling, J. C. ....Grand Rapids
§ Fischer, M. McC. ....Duluth
§ Fisketti, Henry ....Duluth
§ Flynn, Bernard F. ....Hibbing
Fredericks, M. G. ....Duluth
§ Gillespie, M. G. ....Duluth
§ Goldish, D. R. ....Duluth
Goodman, Chase ....Virginia
§ Gowan, L. R. ....Duluth
§ Grahek, J. P. ....Ely
* Graves, W. N. ....Duluth
§ Grinley, A. V. ....Grand Rapids
§ Haavik, J. E. ....Duluth
§‡Halbert, J. J. ....Duluth
§ Halliday, P. V. ....Duluth
Halme, W. B. ....Wadena
† Haney, Claude L. ....Duluth
§ Hanson, E. O. ....Carlton
§ Harris, C. N. ....Hibbing
§ Hatch, W. E. ....Duluth
Hayes, M. F. ....Nashwauk
§ Hedberg, G. A. ....Nopeming
Heiam, Wm. C. ....Cook
§ Hilding, A. C. ....Duluth
Hill, F. E. ....Duluth
Hirschboeck, F. J. ....Duluth
§ Hoff, H. O. ....Duluth
§ Houkom, S. S. ....Duluth
Hutchinson, H. ....Moose Lake
§ Jacobson, Clarence ....Chisholm
§ Jacobson, F. C. ....Duluth
§ Jensen, T. J. ....Duluth
§ Jeronimus, H. J. ....Duluth
§ Jessico, C. M. ....Duluth
§ Joffe, H. H. ....Duluth
§ Johnson, K. E. ....Duluth
§ Johnsrud, L. W. ....Chisholm
§†Johnston, R. O. ....Hibbing
Jolin, F. M. ....Bovey
‡ Karges, L. E...Camp Atterbury, Ind.
§ Kelly, A. C. ....Duluth
§ Keyes, R. W. ....Ely
§ Klein, Harry ....Duluth
§ Klein, Wm. A. ....Duluth
§ Knapp, F. N. ....Duluth
§ Knoll, W. V. ....Duluth
§ Kohlbry, C. O. ....Duluth
§ Kotchevar, F. R. ....Eveleth
Kozberg, Oscar ....Moose Lake
§ Krueger, V. R. ....Nopeming
Indihar, John E., Jr. ....Ely
La Bree, R. H. ....Duluth
§†Laird, A. T. ....Duluth
§ Latterell, K. E. ....Duluth
Lepak, F. J. ....Duluth
§ Litman, S. N. ....Duluth
§ Lovshin, W. C. ....Eveleth
§†Luth, D. V. ....Duluth
§ MacFarlane, P. H. ....Chisholm
§ MacRae, G. C. ....Duluth
MacSween, George ....Duluth
§ Magney, F. H. ....Duluth
Magraw, R. M. ....Saint Paul
§ Malmstrom, J. A. ....Virginia
† Marcley, W. J. ....Minneapolis
§ Martin, W. C. ....Duluth
§ Mayne, R. M. ....Nopeming
† McCarty, P. D. ....Ely
† McCoy, M. K. ....Duluth
† McDonald, A. L. ....Duluth
§ McDonald, O. G. ....Duluth
§ McHaffie, O. L. ....Duluth
§ McKenna, M. J. ......Grand Rapids
§ McLeod, J. L. ......Grand Rapids
§ McNutt. J. R. ....Duluth
Mead, C. H. ....Duluth

§ Merriman, L. L. ....Duluth
‡ Meyer, J. O. ....Grand Rapids
§ Minty, E. W. ....Duluth
§ Moe, R. J. ....Duluth
Moe, Thos. ....Moose Lake
§ Moehring, H. G. ....Duluth
Mollers, T. P. ....Soudan
Monroe, P. B. ....Cloquet
Monserud, N. O. ....Cloquet
§ Morsman, L. W. ....Hibbing
Moyer, J. B. ....Duluth
Mueller, S. C. ......Carriere, Miss.
§ Munson, M. S. ....Barnum
§ Murray, R. A. ....Hibbing
§ Neff, W. S. ....Virginia
§ Nelson, R. L. ....Duluth
§ Nicholson, M. A. ....Duluth
Norberg, C. E. ....Cloquet
§ Nutting, R. E. ....Duluth
§ Olson, A. E. ....Duluth
Olson, A. O. ....Duluth
§ O'Neill, J. C. ....Duluth
‡ Paciotti, V. J. ....San Diego, Calif.
§ Papermaster, Ralph ....Two Harbors
† Parker, O. W. ....Duluth
§ Parson, E. I. ....Duluth
§ Pasek, A. W. ....Cloquet
‡ Pasek, E. A. ....Portland, Ore.
§ Patch, O. B. ....Duluth
† Pearsall, R. P. ....Virginia
§ Pederse, R. C. ....Duluth
Pennie, D. F. V. ....Duluth

Peterson, E. N. ....Virginia
§ Peterson, J. H. ....Duluth
§ Pierce, J. R. ....Virginia
§ Power, J. E. ....Duluth
Puumala, R. H. ....Cloquet
§ Raadquist, C. S. ....Hibbing
§ Reed, Paul ....Virginia
*†Robinson, J. M. ....Goshen, N. Y.
§ Rokala, H. E. ....Virginia
§†Rood, D. C. ....Santa Barbara, Calif.
Rowe, O. W. ....Duluth
Rowles, E. K. ....Coleraine
§ Rudie, P. S. ....Duluth
§ Runquist, J. M. ....Duluth
Ryan, Wm. J. ....Duluth
§ Sach-Rowitz, A. ....Moose Lake
§ Salter, R. A. ....Virginia
Sandell, S. T. ....Nopeming
‡ Sanford, J. B. ..Battle Creek, Mich.
§ Sarff, O. E. ....Duluth
Sax, M. H. ....Duluth
Sax, S. G. ....Duluth
Schirber, M. J. ......Grand Rapids
§ Schmid, J. F. ....Duluth
§ Schneider, L. E. ....Duluth
§ Schnell, F. S. ....Virginia
†§Schroder, C. H. ..Pottstown, Penn.
§ Schnell, F. S. ....Virginia
Schweiger, T. R. ....Hibbing
§ Sher, D. A. ....Virginia
§ Siegel, J. S. ....Virginia
§ Sinamark, Andrew ....Hibbing
Sisler, C. E. ....Grand Rapids

§ Smith, C. M. ....Duluth
Smith, W. R. ....Grand Marais
Snyker, O. E. ....Ely
§ Spang, A. J. ....Duluth
§ Spang, J. S. ....Duluth
§‡Strandjord, N. M.
Camp Atterbury, Indiana
§†Strathern, M. L. ....Gilbert
§ Strauss, E. C. ....Duluth
§ Strewler, G. J. ....Duluth
§ Strobel, Wm. G. ....Duluth
§ Sutherland, H. N. ....Ely
§ Swedberg, Wm. A. ....Duluth
§ Swenson, A. O. ....Duluth
§ Teich, K. W. ....Duluth
§ Terrell, B. J. ....Nopeming
§†Tetlie, J. P. ..Camp Carson, Colo.
Thiem, C. E. ....Hibbing
Tingdale, Carlyle ....Hibbing
§ Tosseland, N. E. ....Duluth
§ Tuohy, E. L. ....Duluth
§ Urberg, S. E. ....Duluth
Van Ryzin, D. J. ....Duluth
§ Walder, H. J. ....Duluth
† Walker, A. E. ....Duluth
§ Wallace, M. O. ....Duluth
Walter, F. H. ..International Falls
§ Wells, A. H. ....Duluth
§ Wheeler, D. W. ....Duluth
§ Williams, B. F. P. ....Duluth
Winter, J. A. ....Duluth
§ Ylitalo, W. H. ....Hibbing
§ Young, T. O. ....Duluth

SCOTT-CARVER COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of each month
Annual meeting, June
Number of Members—31

President
Schimelpfenig, G. T. ....Chaska
Secretary
Rynda, E. R. ....New Prague

Ahrens, C. F. ....Duluth
Buck, F. H. ....Shakopee
Carlson, N. C...Newport Beach, Calif.
§ Cervenka, C. F. ....New Prague
§ Doherty, E. M. ....New Prague
§ Hebeisen, M. B. ....Chaska
Heinz, Ivy B. ....Shakopee

Heinz, L. H. ....Shakopee
§ Juergens, H. M. ....Belle Plaine
‡ Juergens, J. L. ....Belle Plaine
‡ Kline, R. F. ....Montgomery
§ Kortsch, F. P. ....Prior Lake
§ Kucera, S. T. ....Northfield
‡ Larson, Laren ....Watertown
Martin, T. P. ....Arlington
Nagel, H. D. ....Waconia
Ninneman, N. N. ....Waconia
† Novak, E. E. ....New Prague
Olson, C. J. ....Belle Plaine

§ Pearson, B. F. ....Shakopee
§†Pearson, R. T. ....Shakopee
Pogue, R. E. ....Watertown
§ Ponterio, J. E. ....Shakopee
§ Rynda, E. R. ....New Prague
† Sanford, J. A. ....Savage
§ Schimelpfenig, G. T. ....Chaska
§ Simons, B. H. ....Chaska
Stahler, E. ....Jordan
Stahler, P. A. ....Jordan
§†Westerman, Alvin ......Montgomery
§ Westerman, F. C. ......Montgomery

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

Cottonwood, Jackson, Murray, Nobles, Pipestone and Rock Counties
Regular meetings, on call
Annual meeting, on call
Number of Members—63

President
Chunn, Stanley S. ....Pipestone
Secretary
Heiberg, O. M. ....Worthington

Ahrens, H. G. ....Worthington
† Anderson, O. W. ....Luverne
§ Arnold, E. W. ....Adrain
§ Balmer, A. I. ....Pipestone
§ Basinger, H. P. ....Windom
Basinger, H. R. ....Mountain Lake
§ Beckering, Gerrit ....Edgerton
§ Benjamin, W. G. ....Pipestone
Bofenkamp, F. W. ....Luverne
Boone, E. S. ....Luverne
† Brown, A. H. ....Pipestone
Brzica, S. M. ....Worthington
Carlson, J. V. ....Westbrook
§ Christiansen, H. A. ....Jackson
§ Chunn, S. S. ....Pipestone
† De Boer, Hermanus ......Edgerton
Doman, V. W. ....Lakefield
* Doms, H. C. ....Slayton

§ Gruys, R. I. ....Windom
§ Hallin, R. P. ....Worthington
§ Halloran, W. H. ....Jackson
§ Halpern, D. J. ....Brewster
§ Harrison, P. W. ....Worthington
§ Heiberg, O. M. ....Worthington
§ Hoyer, L. J. ....Windom
§ Karleen, B. N. ....Jackson
§ Kilbride, E. A. ....Worthington
§ Kotval, R. J. ....Pipestone
§ Laikola, L. A. ....Adrian
§ Lohmann, J. G. ....Pipestone
§ Maitland, E. T. ....Jackson
† Manson, F. M. ....Worthington
§ Martin, A. C. ....Luverne
§ Minge, R. K. ....Worthington
§ Nealy, D. E. ....Adrian
§ Nelson, C. A...........Worthington
Nickerson, J. R..........Heron Lake
§ Nywall, D. D. ....Slayton
§ Pankratz, P. J. ......Mountain Lake
§ Patterson, H. D. ....Slayton
§ Paulson, Elmer ....Worthington

§ Philp, R. D..................Windom
§ Pierson, R. F.................Slayton
§ Piper, W. A. ....Mountain Lake
§‡Ritzinger, T. R. ....Lakefield
§ Robinett, R. W. ....Worthington
§ Rose, J. T. ....Lakefield
§ Schade, F. L. ....Worthington
§ Schutz, E. S. ....Mountain Lake
§ Sherman, C. L. ....Luverne
§ Slater, S. A. ....Worthington
§ Sogge, L. L..................Windom
§ Sorum, F. T. ....Jasper
§ Stam, John ....Worthington
Stanley, C. R. ....Worthington
Stevenson, B. M. ....Fulda
§ Stratte, H. C. ....Windom
‡ Watkins, J. A. ....Windom
§ Wells, W. B. ....Jackson
† Williams, L. A. ....Minneapolis
§ Williamson, H. A. ......Heron Lake
Wisness, O. A. ....Comfrey
Wolff, H. B. ....Worthington

STEARNS-BENTON COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of each month
Annual meeting, third Thursday in December
Number of Members—62

President
DuBois, J. F. ....Sauk Centre
Secretary
Baumgartner, F. H. ....Albany

§ Anderson, E. M. ....Saint Cloud
Andrews, Bernice F. ....Holdingford
§ Baumgartner, F. H. ....Albany
§ Beuning, J. B. ....Saint Cloud

Brigham, C. F., Sr. ......Saint Cloud
§ Brigham, C. F., Jr. .....Saint Cloud
† Broker, H. M. ....Minneapolis
§ Buscher, J. C. ....Saint Cloud
§ Clark, H. B. ....Saint Cloud
Cleaves, W. D. ....Sauk Centre
§ Donaldson, C. S. ....Foley
DuBois, J. F., Jr.......Sauk Centre
DuBois, J. F., Sr. ......Sauk Centre

Engstrom, G. F. ....Belgrade
Fidelman, N. E. ....Minneapolis
§ Fleming, T. N. ....Saint Cloud
§ Friesleben, Wm. ....Sauk Rapids
§ Gaida, J. B. ....Saint Cloud
§ Goehrs, G. H...........Saint Cloud
Goehrs, H. W. ....Saint Cloud
Grant, J. C. ....Sauk Centre
§ Haberman, Emil ....Osakis

§ Halenback, P. L. ....Saint Cloud
*†Hemstead, Werner ......Minneapolis
Henry, C. J. ....Milaca
Henry, J. E. ....Milaca
Hoehn, David ....Holdingford
§ Jones, R. N. ....Saint Cloud
§ Kelly, J. F. ....Cold Spring
§ Koop, S. H. ....Richmond
§ Kuhlmann, L. B. ....Melrose
† Lewis, C. B. ....Saint Cloud
§ Libert, J. N. ....Saint Cloud
Lindeman, R. J. ....Paynesville
§ Luckemeyer, C. J. ....Saint Cloud
§ Mahowald, A. ....Albany
§ McDowell, J. P. ....Saint Cloud
Meyer, A. A. ....Melrose
§ Milhaupt, E. N. ....Saint Cloud
§ Musachio, N. F. ....Foley
Myre, C. R. ....Paynesville
§‡Neils, V. E. ....Sauk Rapids
§ Nessa, C. B. ....Saint Cloud
§ O'Keefe, J. P. ....Saint Cloud
§ Petersen, R. T. ....Saint Cloud
§ Phares, O. C. ....Saint Cloud
§ Raetz, S. J. ....Maple Lake
§ Reif, H. J. ....Saint Cloud
§ Richards, W. B. ....Saint Cloud
§ Sandven, N. O. ....Paynesville
Schatz, F. J. ....Saint Cloud
† Sherwood, G. E. ....Kimball
§ Simon, T. R. ....Saint Cloud
Sisk, H. E. ....Saint Cloud
Stangl, P. E. ....Saint Cloud
Veranth, L. A. ....Saint Cloud
§ Walfred, K. A. ....Saint Cloud
Wedes, Deno J. ....Belgrade
† Wetzel, E. V. ....Saint Cloud
§ Wittrock, L. H. ....Watkins
Zachman, A. H. ....Melrose

STEELE COUNTY MEDICAL SOCIETY

Regular meetings, called by the officers
Annual meeting, February
Number of Members—21

President
Osborn, D. O. ....Owatonna
Secretary
Wilkowske, R. J. ....Owatonna

§ Anderson, F. C. ....Owatonna
§ Arnesen, J. F. ....Owatonna
§ Dewey, D. H. ....Owatonna
Ertel, E. Q. ....Ellendale
§ Fischer, J. R. ......Blooming Prairie
§ Halvorsen, D. K. ....Owatonna
Hartung, E. H. ....Claremont
Kulstad, O. S. ....Dodge Center
§ Lundquist, C. W. ....Owatonna
§ McEnaney, C. T. ....Owatonna
§ McIntyre, J. A. ....Owatonna
§ Melby, Benedik .....Blooming Prairie
† Morehead, D. E. ....Owatonna
§ Nelson, E. J. ....Owatonna
§ Olson, A. J. ....Owatonna
§ Osborn, D. O. ....Owatonna
§ Roberts, O. W. ....Owatonna
§ Schaefer, J. F. ....Owatonna
Senn, E. W. ....Owatonna
§ Stransky, T. W. ....Owatonna
§ Wilkowske, R. J. ....Owatonna

UPPER MISSISSIPPI MEDICAL SOCIETY

Aitkin, Beltrami, Clearwater, Crow Wing, Hubbard, Koochiching, Lake of the Woods, Morrison, Todd, and Wadena Counties
Regular meetings quarterly
Annual meeting, January
Number of Members—100

President
Mosby, M. E. ....Long Prairie
Secretary
Badeaux, G. I. ....Brainerd

§ Anderson, W. W. ....Brainerd
§ Badeaux, G. I. ....Brainerd
§ Beise, R. A. ....Brainerd
Bender, J. H. ....Brainerd
Benson, A. H. ....Little Falls
Borgerson, A. H. ....Long Prairie
Brown, H. M. ....Walker
Cardle, G. E. ....Brainerd
Closuit, F. C. ....Aitkin
Cook, J. M. ....Staples
§ Coombs, C. H. ....Cass Lake
† Corrigan, J. E. ....Minneapolis
Craig, C. C. ......International Falls
§ Crow, E. R. ....Ah-Gwah-Ching
Cushing, R. L. ....Brainerd
Davis, Lloyd T. ....Wadena
§ Davis, Luther E. ....Wadena
Davis, Thos. L., Jr. ....Wadena
DeWeese, W. J. ....Bemidji
Eiler, John ....Park Rapids
§ Erickson, A. O. ....Long Prairie
Fitzsimmons, Wm. E. ....Brainerd
§ Fortier, G. M. A. ....Little Falls
Franklin, G. W. ....Northome
Garlock, A. V. ....Bemidji
Garlock, D. W. ....Bemidji
Garlock, G. L. ....Bemidji
Ghostley, Mary C. ....Puposky
† Gilmore, Rowland ....Crookston
† Grogan, John S. ....Wadena
Groschupf, T. P. ....Bemidji
Grose, F. N. ....Clarrissa
§ Hanover, R. D. ....Little Fork
Hartjen, J. K. ....Bemidji
Healy, R. T. ....Pierz
Heine, G. W. ....Little Falls
Hendricks, E. J. ....Saint Paul
Higgs, W. W. ....Park Rapids
Hildebrand, J. E. ....Bemidji
† Hoganson, D. E. ....Bemidji
† House, Z. E. ....Burbank, Calif.
§ Houston, D. M. ....Park Rapids
Hubbard, O. E. ....Brainerd
† Johnson, C. E. ....Saint Paul
Johnson, D. L. ....Little Falls
Johnson, E. W. ....Bemidji
§ Kanne, E. R. ....Brainerd
Kelly, J. H. ....Wadena
Kinports, E. B. ....International Falls
§ Knight, E. G. ....Swanville
Larson, L. J. ....Bagley
* Laughlin, J. T. ....Grey Eagle
Lee, Hubert W. ....Brainerd
Leggett, Elizabeth ....Ah-Gwah-Ching
§ Lenarz, A. J. ....Browerville
Logan, J. O. ....Wadena
Longfellow, Helen W. ......Brainerd
Lund, W. J. ....Staples
Lundsten, L. C. ....Bemidji
§ Marshall, C. M. ....Crosby
McCann, D. F. ....Bemidji
† McGreary, M. D. ...Oceanside, Calif.
McLane, W. O. ....Brainerd
Mitby, Irving L. ....Minneapolis
Mosby, M. E. ....Long Prairie
§ Mulligan, A. M. ....Brainerd
Nauth, Bernard ....Bagley
Nelson, N. P. ....Minneapolis
§ Nixon, J. B. ....Crosby
Olson, Lillian A. .....Ah-Gwah-Ching
Palmer, H. A. ....Blackduck
Parker, C. W. ....Wadena
§ Parker, W. E. ....Sebeka
Petraborg, H. T. ....Aitkin
Pierce, C. H. ....Wadena
Pierce, R. B. ....Renville
Potek, David ......International Falls
§ Quanstrom, V. E. ....Brainerd
Ringle, O. F. ....Walker
§ Rozycki, A. T. ....Pine River
Rutherford, W. C. ....Brainerd
Sanderson, A. G. ....Anoka
Schmitz, G. P. ....Little Falls
Simmons, E. J. ....Saint Paul
§ Stein, R. J. ....Pierz
Stoy, R. A. ....Little Falls
§†Thabes, J. A., Sr. ....Brainerd
Thabes, J. A., Jr. ....Brainerd
Vandersluis, C. W. ....Bemidji
§ Watson, A. M. ....Royalton
Watson, Percy T. ....Minneapolis
§ Watson, S. W. ....Royalton
Whittemore, D. D. ....Bemidji
Wikoff, H. M. ....Crookston
§ Will, C. B. ....Bertha
§ Will, W. W. ....Bertha
Williams, M. M., ...Ah-Gwah-Ching
Wingquist, C. G. ....Crosby
Ziegler, M. D. ....Pine River

WABASHA COUNTY MEDICAL SOCIETY

Annual meeting, first Thursday after the first Monday in October
Other meetings as called by the President
Number of Members—16

President
Martin, Doreen A. ....Wabasha
Secretary
Wilson, W. F. ....Lake City

§ Bayley, E. C. ....Lake City
§ Bouquet, B. J. ....Wabasha
§ Bowers, R. N. ....Lake City
Collins, J. S. ....Wabasha
§ Ekstrand, L. M. ....Wabasha
§ Ellis, E. W. ....Elgin
§ Flesche, B. A. ....Lake City
§ Gjerde, W. P. ....Lake City
Glabe, R. A. ....Plainview
§ Mahle, D. G. ....Plainview
Martin, D. A. ....Wabasha
§ Ochsner, C. G. ....Wabasha
† Replogle, W. H. ..Los Angeles, Calif.
‡ Vaughn, C. G., Ft. Leonard Wd., Mo.
‡ Wellman, T. G. ......Clinton, Iowa
† Wilson, W. F. ....Lake City

WASECA COUNTY MEDICAL SOCIETY

Regular meetings, as decided
Annual meeting, January
Number of Members—10

President
Oeljen, S. C. G. ....Waseca

Secretary
Olds, G. H. ....New Richland

§ Davis, R. D. ....Waseca
§†Gallagher, B. J. ....Waseca
‡ Gallagher, W. B. ....Vienna, Austria
§ Hottinger, R. C. ....Janesville
§ McIntire, H. M. ....Waseca
§ Normann, S. T. ....Waseca
§ Oeljen, S. C. G. ....Waseca
§ Olds, G. H. ....New Richland
§ Swenson, O. J. ....Waseca
§ Wadd, C. T. ....Janesville

WASHINGTON COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday in each month
Annual meeting, November
Number of Members—13

President	
Johnson, Ray G.	Stillwater
Secretary	
Carlson, R. E.	Stillwater
§*Boleyn, E. S.	Stillwater
§ Carlson, R. E.	Stillwater
§†Haines, J. H.	Stillwater
Humphrey, W. R.	Stillwater
§ Jenson, J. E.	Stillwater
§ Johnson, R. G.	Stillwater
Josewski, R. J.	Stillwater
§ Juergens, M. F.	Stillwater
§ McCarten, F. M.	Stillwater
Ruggles, G. M.	Forest Lake
§ Sherman, C. H.	Bayport
§ Stuhr, J. W.	Stillwater
Van Meier, Henry	Stillwater

WEST CENTRAL MINNESOTA MEDICAL SOCIETY

Big Stone, Pope, Stevens, and Traverse Counties
Regular meetings, first Wednesday in March, May, September and November
Annual meeting, first Wednesday in November
Number of Members—31

President	
Rossberg, R. A.	Morris
Secretary	
Kooda, J. C.	Morris
§ Arneson, A. I.	Morris
§ Barnett, G. L.	Graceville
§ Behmler, F. W.	Morris
§ Bergan, Otto	Clinton
† Bolsta, Charles	Ortonville
§ Bucher, F. D.	Starbuck
Dahle, M. B.	Olivia
§†Eberlin, E. A.	Glenwood
§ Eide, O. A.	Hancock
§ Elsey, E. M.	Glenwood
† Elsey, J. R.	Glenwood
† Fitzgerald, E. T.	Rialti, Calif.
§ Gericke, J. T.	Glenwood
§ Giesen, A. F.	Starbuck
Hedemark, H. H.	Ortonville
Hedemark, T. A.	Ortonville
§ Karn, J. F.	Ortonville
§ Kooda, J. C.	Morris
§ Lindberg, A. L.	Wheaton
§†Linde, Herman	Cyrus
§ Magnuson, A. E.	Wheaton
§ Merrill, R. W.	Morris
Muir, W. F.	Browns Valley
§ O'Donnell, D. M.	Ortonville
§ Oliver, I. L.	Graceville
§ Plasha, M. K.	Glenwood
† Ransom, M. L.	Hancock
§ Rossberg, R. A.	Morris
§ Salk, R. J.	Herman
§ Swedenburg, P. A.	Glenwood
Wagner, N. W.	Graceville

WINONA COUNTY MEDICAL SOCIETY

Regular meeting, first Monday in January, April, July and October
Annual meeting in January
Number of Members—35

President	
Johnston, L. F.	Winona
Secretary	
Heise, Carl v R.	Winona
Benoit, F. T.	Winona
* Blochowiak, N. P.	Rushford
§ Boardman, D. V.	Winona
§ Christensen, E. E.	Winona
§ Finkelnburg, W. O.	Winona
Haesly, W. W.	Rushford
§ Hartwich, R. F.	Winona
§ Heise, Carl v R.	Winona
§ Heise, Herbert	Winona
§ Heise, Paul	Winona
§ Heise, Philip	Winona
§†Heise, W. F. C.	Winona
§ Heise, W. v R.	Winona
§ Johnston, L. F.	Winona
§ Keyes, J. D.	Winona
§ Loomis, G. L.	Winona
§ Mattison, P. A.	Winona
McLaughlin, E. M.	Winona
§ Meinert, A. E.	Winona
Neumann, C. A.	Lewiston
§ Page, R. L.	St. Charles
§†Robbins, C. P.	Winona
§ Roemer, H. J.	Winona
§ Rogers, C. W.	Winona
Rollins, Pat	St. Charles
§ Satterlee, H. W.	Lewiston
§ Schmidt, H. R.	Winona
§ Steiner, I. W.	Winona
§†Tweedy, G. J.	Winona
§ Tweedy, J. A.	Winona
§ Tweedy, R. B.	Winona
§ Vollmer, F. J.	Winona
§ Wilson, R. H.	Winona
§ Woltjen, M. J.	Rushford
§ Younger, L. I.	Winona

WRIGHT COUNTY MEDICAL SOCIETY

Regular meetings every three months
Annual meeting, October
Number of Members—15

President	
Hall, W. E.	Maple Lake
Secretary	
Catlin, T. J.	Buffalo
§ Anderson, W. P.	Buffalo
§ Bendix, L. H.	Annandale
§†Catlin, J. J.	Buffalo
§ Catlin, T. J.	Buffalo
§ Ellison, F. E.	Monticello
§ Greenfield, W. T.	Cokato
Grundset, O. J.	Montrose
§ Guilfoile, P. F.	Delano
Hall, W. E.	Maple Lake
§ Hart, W. E.	Monticello
‡ Larson, Loren J.	San Diego, Calif.
§†Ridgway, A. M.	Annandale
§ Smorszczok, M	Monticello
§ Thielen, R. D.	Saint Michael
§ Thomas, William H.	Howard Lake

Alphabetic Roster

Key to Symbols: *Deceased; †Affiliate, Associate or Life Member; ‡In Service

	Aanes, A. M.	Red Wing
†	Abbott, Albert R.	Rochester
†	Aborn, W. H.	Hawley
	Abraham, A. L.	Duluth
	Abramson, Milton	Minneapolis
	Achor, R. W. P.	Rochester
	Adair, A. F., Jr.	Saint Paul
	Adams, B. S.	Hibbing
	Adams, R. C.	Rochester
	Addy, E. R.	Gilbert
	Adkins, C. D.	Minneapolis
†	Adkins, C. M.	Thief River Falls
	Adkins, G. H.	Sandstone
*	Adson, A. W.	Rochester
	Affeldt, D. E.	Kasson
‡	Aga, John	Mankato
	Agustsson, Hreidar	Minneapolis
	Ahren, E. E.	Minneapolis
	Ahlfs, J. J.	Caledonia
	Ahrens, A. H.	Saint Paul
	Ahrens, C. F.	Duluth
	Ahmrens, H. G.	Worthington
	Ahrens, R. M.	Saint Paul
†	Aitkens, H. B.	LeCenter
*	Akester, Ward	Mt. Pleasant, Ia.
	Akins, W. W.	Red Wing
	Albrecht, H. H.	Chisago City
	Alcorn, Wm. J.	Wabasso
†	Alden, J. F., Jr.	Saint Paul
	Alexander, H. A.	Minneapolis
	Aling, C. A.	Minneapolis
	Allen, John H.	Montevideo
	Allen, E. V. N.	Rochester
	Allison, D. D.	Litchfield
	Altnow, H. O.	Minneapolis
	Amberg, Saml.	Rochester
	Andersen, H. A.	Rochester
	Andersen, S. C.	Minneapolis
	Anderson, A. S.	Minneapolis
	Anderson, C. D.	Chicago, Ill.
	Anderson, Chester A.	Madison
	Anderson, Chester A.	Hector
	Anderson, D. D.	Minneapolis
	Anderson, D. P., Jr.	Austin
	Anderson, D. M.	Minneapolis
	Anderson, D. C.	Olivia
†	Anderson, E. D.	Minneapolis
	Anderson, E. M.	Saint Cloud
	Anderson, E. R.	Minneapolis
‡	Anderson, Frank J.	Ft. Leavenworth, Kans.
	Anderson, F. C.	Owatonna
	Anderson, H. J.	Austin
	Anderson, J. J.	Mankato
	Anderson, K. W.	Minneapolis
	Anderson, M. J.	Rochester
	Anderson, M. W.	Rochester
†	Anderson, O. W.	Luverne
	Anderson, R. W.	Saint Paul
	Anderson, S. H.	Kerville, Tex.
	Anderson, U. S.	Minneapolis
	Anderson, W. P.	Buffalo
	Anderson, W. E.	Clearbrook
	Anderson, W. W.	Brainerd
	Anderson, Wm. H.	Minneapolis
	Anderson, Wm. T.	Minneapolis
	Andreassen, E. C.	Saint Paul
†	Andrejek, A. R.	Minneapolis
	Andresen, K. D'A.	Minneapolis
	Andrews, B. F.	Holdingford
	Andrews, R. S.	Minneapolis
	Andrews, R. N.	Mankato
	Ankner, F. J.	Minneapolis
	Antel, J. J.	Rochester
	Arata. J. E.	Ft. Wayne, Ind.
	Arends, A. L.	Minneapolis
	Arey, S. L.	Minneapolis
†	Arhelger, Stuart	Minneapolis
	Arko, J. L.	Hibbing
	Arlander, C. E.	Minneapolis
	Arling, L. S.	Minneapolis
	Armstrong, R. S.	Winnebago
	Armstrong, Wilbur A.	Rochester
	Arndt, H. Wm.	Detroit Lakes
	Arnesen, J. F.	Owatonna
	Arenson, A. I.	Morris
	Arnold, Anna W.	Minneapolis
	Arnold, E. Wm.	Adrian
	Arnquist, A. S.	Saint Paul
	Arny, F. P.	Saint Paul
	Artist, E. J.	Rochester
	Arzt, P. K.	Saint Paul
	Athens, A. G.	Duluth
‡	Atmore, Wm. G.	Corpus Christi, Tex.
†	Aune, Martin	Minneapolis
†	Aurand, Wm. H.	Minneapolis
	Aurelius, J. R.	Saint Paul
*	Ausman, C. F.	South Saint Paul
	Ausman, D. R.	Saint Paul
	Austrian, Sol	Cosmos
‡	Baars, C. W.	Camp Cook, Calif.
	Babb, F. S.	Saint Paul
	Bachnik, F. W.	Hibbing
	Backus, R. W.	Nopeming
	Bacon, D. K.	Saint Paul
	Badeaux, George I.	Brainerd
‡	Bagby, G. W.	Ft. Leonard, Mo.
	Baggenstoss, A. H.	Rochester
	Baggenstoss, O. J.	Minneapolis
	Bagley, C. M.	Duluth
	Bagley, Elizabeth C.	Duluth
	Bagley, Wm. R.	Duluth
	Bahn, R. C.	Rochester
	Baich, V. M.	Bovey
	Bain, R. C.	Rochester
	Baird, J. W.	Minneapolis
	Baken, M. P.	Minneapolis
	Baker, A. B.	Minneapolis
	Baker, A. T.	Minneapolis
*	Baker, A. C.	Fergus Falls
	Baker, G. S.	Rochester
	Baker, H. L., Jr.	Rochester
	Baker, H. R.	Hayfield
	Baker, Jeanette L.	Fergus Falls
†	Baker, Looe	Minneapolis
	Baker, M. E.	Minneapolis
	Baker, N. H.	Fergus Falls
	Baker, P. L.	Rochester
	Baker, R. L.	Hayfield
	Bakkila, H. E.	Duluth
	Balcome, M. M.	Saint Paul
†	Balfour, D. C.	Rochester
	Balfour, Wm. M.	Rochester
	Balkin, S. G.	Minneapolis
	Balmer, A. I.	Pipestone
‡	Bank, H. E.	Portland, Ore.
	Banner, E. A.	Rochester
	Bannon, Wm. G.	Rochester
	Barber, John R.	Rochester
	Barber, Tracy E.	Austin
	Bardon, Richard	Duluth
	Bargen, J. A.	Rochester
	Barker, J. D.	Duluth
	Barker, N. W.	Rochester
	Barnes, A. R.	Rochester
	Barnett, J. M.	Saint Paul
	Barnett, G. L.	Graceville
	Barney, L. A.	Duluth
	Barno, Alex	Minneapolis
	Baronofsky, I. D.	Minneapolis
	Barr, L. C.	Albert Lea
	Barr, M. M.	Minneapolis
	Barr, Wm. H.	Wells
	Barrett, E. E.	Duluth
	Barrett, J. W.	Rochester
‡	Barron, J. J.	Camp McCoy, Wis.
	Barron, Moses	Minneapolis
	Barron, S. S.	Minneapolis
	Barry, L. W.	Saint Paul
	Barry, Maurice J., Jr.	Rochester
†	Barsness, Nellie O. N.	Saint Paul
	Bartholomew, L. G.	Rochester
	Basinger, H. R.	Mountain Lake
	Basinger, H. P.	Windom
	Baskin, John L.	Cameron. Tex.
	Baskin, R. H.	Cameron, Tex.
	Bastron, J. A.	Rochester
	Batdorf, B. N.	Good Thunder
	Bauer, Donald D.	Saint Paul
	Bauer, E. L.	Saint Paul
	Baumgartner, F. H.	Albany
†	Baxter, S. H.	Minneapolis
	Bayley, E. C.	Lake City
	Bayard, E. D.	Rochester
	Beach, Northrup	Minneapolis
	Beahrs, O. H.	Rochester
†	Beals, Hugh	Saint Paul
†	Beard, A. H.	Deephaven
‡	Beard, E. F.	Randolph Field, Tex.
†	Becker, A. M.	Minneapolis
	Beaton, J. G.	New Ulm
	Becker, D. L.	Rochester
	Becker, F. T.	Duluth
‡	Becker, S. Wm., Jr.	Chicago
	Beckering, Gerrit	Edgerton
	Bedford, E. Wm.	Minneapolis
	Beech, R. H.	Saint Paul
	Beek, Harvey O.	Saint Paul
	Beer, J. J.	Saint Paul
‡	Behling, F. L.	Barston, Cal.
	Behmler, F. W.	Morris
	Behr, O. K.	Crookston
	Beirstein, Saml.	Minneapolis
	Beise, R. A.	Brainerd
	Beiswanger, R. H.	Minneapolis
	Bell, C. C.	Saint Paul
†	Bell, E. T.	Minneapolis
	Bellegie, N. J.	Houston, Tex.
‡	Bellomo, James	New York
	Bellville, T. P.	Minneapolis
	Belzer, M. S.	Minneapolis
	Bender, J. H.	Brainerd
	Bender, L. F.	Rochester
	Bendix, L. H.	Annandale
	Benedict, W. H.	Rochester
	Benedict, Wm. L.	Rochester
	Benell, O. E.	Virginia
	Benepe, J. L.	Saint Paul
	Benesh, L. A.	Minneapolis
†	Benjamin, A. E.	Minneapolis
	Benjamin, E. G.	Minneapolis
	Benjamin, H. G.	Minneapolis
	Benjamin, W. G.	Pipestone
†	Bennion, P. H.	Isway, Mont.
	Benoit, F. T.	Winona
	Benson, A. H.	Little Falls
	Benson, E. E.	Minneapolis
	Benson, Ellis S.	Minneapolis
	Benson, L. M.	Camp Rucker, Ala.
	Bentley, N. P.	Saint Paul
	Benua, R. S.	Rochester
	Benz, E. J.	Rochester
	Bepko, Marie K.	Cloquet
	Berdez, G. L.	Duluth
	Berens, James	Rochester
	Bergan, Otto	Clinton
	Bergan, R. O.	Duluth
	Berge, D. O.	Roseau
	Berge, H. L.	Mora
	Berger, A. G.	Minneapolis
	Bergh, G. S.	Minneapolis
	Bergh, S. M.	Minneapolis
	Bergman, O. B.	Saint James
	Bergquist, K. E.	Battle Lake
	Berkman, J. M.	Rochester
	Berkwitz, N. J.	Minneapolis
	Berlin, A. S.	Hallock
	Berman, Reuben	Minneapolis
	Bernatz, P. E.	Rochester
	Bernstein, Irving C.	Minneapolis
	Bernstein, Wm. C.	Saint Paul
	Bessesen, A. N., Jr.	Minneapolis
	Bessesen, D. H.	Minneapolis
	Bessesen, Wm. A.	Minneapolis
	Beuning, J. B.	Saint Cloud
	Beyer, E.	Braham
†	Bianco, Anthony J., Jr.	Duluth
	Bianco, A. J.	Duluth
	Bicek, J. F.	Saint Paul
	Bickel, Wm. H.	Rochester
†	Biedermann, Jacob	Thief River Falls
	Bieter, R. N.	Minneapolis
	Bigler, E. E.	Perham
	Bigler, I. E.	Perham
	Bilka, P. J.	Minneapolis
	Billings, R. E.	Franklin
	Binder, M. R.	Minneapolis
†	Binet, H. E.	Gand Rapids
†	Binger, H. E.	Phoenix, Ariz.
	Black, B. M.	Rochester
	Black, E. J.	Saint Paul
	Black, Wm. A.	New Ulm
	Blackmore, S. C.	Biwabik
	Blake, A. J.	Hopkins
*†	Blake, James	Hopkins
	Blake, J. A.	Hopkins
	Blake, P. S.	Hopkins
†	Blakey, A. R.	Osakis
*	Blochowiak, N. P.	Rushford
	Block, M. A.	Rochester
	Bloedel, T. J. G.	Osseo
*	Bloemendaal, E. J. G.	Lake Park
	Blomberg, Wm. R.	Princeton
†	Blood, A. M.	New Orlean, La.
	Bloom, Joseph	Duluth

	Bloom, N. B.	Minneapolis
	Blumberg, H. B.	Fairmont
	Blumenthal, J. S.	Minneapolis
	Boardman, D. V.	Winona
	Bock, R. A.	Saint Paul
	Bockman, M. W. H.	Minneapolis
	Bodaski, Albert A.	Minneapolis
†	Bodelson, A. H.	Pensacola, Fla.
†	Boeckmann, Egil	Saint Paul
	Boehrer, J. J., Jr.	Minneapolis
	Bofenkamp, Benj.	Minneapolis
	Bofenkamp, F. Wm.	Luverne
	Bohn, D. G.	Minneapolis
	Boies, L. R.	Minneapolis
	Bolender, H. L.	Saint Paul
*	Boleyn, E. S.	Stillwater
	Boline, C. A.	Battle Lake
†	Bolsta, Chas.	Ortonville
	Bolz, J. A.	Grand Rapids
	Boman, P. B.	Duluth
	Boody, G. J., Jr.	Dawson
	Boone, E. S.	Luverne
†	Booth, A. E.	Minneapolis
†	Boothby, W. M.	RandolphField, Tex.
	Borden, C. W.	Minneapolis
	Borg, J. F.	Saint Paul
	Borgerson, A. H.	Long Prairie
	Borgeson, E. J.	Minneapolis
	Borman, C. N.	Minneapolis
	Borowicz, Leonard A.	Minneapolis
	Bosland, H. G.	Willmar
	Bossert, C. S.	Mora
	Bostwick, J. L.	Montgomery, Ala.
‡	Boswell, J. T.	Portsmouth, N. J.
	Bottolfson, B. T.	Moorhead
†	Bouma, L. R.	Saint Paul
	Bouquet, B. J.	Wabasha
	Bowen, R. L.	Hibbing
	Bowers, G. G.	Minneapolis
	Bowers, R. N.	Lake City
	Boyd, D. A., Jr.	Rochester
	Boyd, L. M.	Alexandria
	Boyer, G. S.	Crookston
†	Boyer, Saml. H.	Duluth
	Boyer, Saml. H., Jr.	Duluth
	Boynton, Bruce	Ada
	Boynton, Ruth E.	Minneapolis
	Boysen, Herbert	Madelia
†	Boysen, Peter	Bemidji
	Braasch, J. W.	Rochester
†	Braasch, Wm. E.	Rochester
	Brabec, P. F.	Detroit Lakes
	Bradley, N. J.	Willmar
	Brady, Joan V.	Rochester
	Brand, Geo. D.	Saint Paul
†	Brand, Wm. A.	Redwood Falls
	Brandenburg, R. O.	Rochester
	Branham, D. S.	Saint Peter
	Bratrud, A. F.	Minneapolis
†	Bratrud, Edward	Thief River Falls
	Bratrud, Theo E.	Thief River Falls
	Bratrude, E. J.	Saint James
	Braun, O. C.	Grand Rapids
	Bray, E. R.	Saint Paul
	Bray, P. N.	Duluth
	Bregel, F. L.	Saint Peter
†	Breitenbucher, R. B.	Minneapolis
	Brekke, Harvey J.	Minneapolis
	Brickley, P. M.	Rochester
	Bridge, E. V.	Cannon Falls
	Briggs, J. F.	Saint Paul
	Brigham, C. F.	Saint Cloud
	Brigham, C. F., Jr.	Saint Cloud
	Brill, Alice K.	Minneapolis
	Brindley, C. O.	Rochester
	Brink, A. A.	Baudette
	Brink, D. M.	Hutchinson
	Brink, William R.	Rochester
	Broadbent, J. C.	Rochester
	Broadie, T. E.	Saint Paul
	Broders, C. W.	Rochester
	Brodie, W. D.	Saint Paul
†	Broker, H. M.	Minneapolis
‡	Brooker, W. J.	Duluth
	Brookers, Charles	Minneapolis
	Brotchner, R. J.	Sherman Oaks, Cal.
†	Brown, A. H.	Pipestone
†	Brown, E. D.	Paynesville
	Brown, H. A.	Rochester
	Brown, H. M.	Walker
†	Brown, J. C.	Los Gatos, Cal.
	Brown, J. R.	Rochester
	Brown, Wm. D.	Minneapolis
	Bruhl, H. H.	Faribault
	Brunsting, L. A.	Rochester
	Brusegard, J. F.	Red Wing
*	Brutsch, G. C.	Minneapolis
	Brzica, S. M.	Worthington
	Bucher, F. D.	Starbuck
	Buchstein, H. F.	Minneapolis
	Buck, F. H.	Shakopee
	Buckley, R. P.	Duluth
	Buesgens, R. H.	Waterville
	Buie, L. A.	Rochester
	Buirge, R. E.	Minneapolis
	Bulinski, T. J.	Saint Paul
	Bulkley, Kenneth	Minneapolis
	Bunker, B. W.	Anoka
	Burch, E. P., II	Saint Paul
†	Burch, F. E.	Saint Paul
	Burchell, H. B.	Rochester
‡	Burgert, E. O., Jr.	Ft. Sam Houston, Tex.
	Burke, E. C.	Rochester
	Burkland, E. C.	Saint Paul
	Burlingame, D. A.	Saint Paul
*	Burnap, W. L.	Fergus Falls
	Burnham, W. H.	Minneapolis
	Burns, Catherine	Albert Lea
	Burns, F. M.	Milan
	Burns, M. A.	Milan
	Burns, R. M.	Saint Paul
	Burseth, E. C.	Mora
	Burton, C. G.	Saint Paul
	Buscher, J. C.	Saint Cloud
	Bush, R. P.	Saint Paul
	Bushard, W. J.	Minneapolis
	Busher, H. H.	Saint Paul
	Butin, J. W.	Rochester
	Butler, J. K.	Cloquet
	Butt, Hugh R.	Rochester
	Butturiff, C. R.	Freeborn
	Butzer, J. A.	Mankato
	Buzzelle, L. K.	Minneapolis

	Cable, M. L.	Minneapolis
	Cabot, C. M.	Minneapolis
	Cabot, V. S.	Minneapolis
	Cady, L. H.	Minneapolis
	Cain, C. L.	Saint Paul
	Cain, J. C.	Rochester
	Cain, J. H.	Hoffman
	Cairns, R. J.	Redwood Falls
†	Calhoun, F. W.	Albert Lea
	Callahan, F. F.	Saint Paul
*	Callerstrom, G. W.	Minneapolis
	Cameron, Isabell L.	Minneapolis
	Cameron, J. H.	Crookston
	Campbell, L. M.	Minneapolis
	Campbell, O. J.	Minneapolis
	Cantwell, Wm. F.	International Falls
	Caplan, Leslie	Minneapolis
	Card, Wm. H.	Minneapolis
	Cardle, G. E.	Brainerd
	Carey, J. B.	Minneapolis
	Carey, J. M.	Rochester
	Carlander, L. W., Jr.	Minneapolis
	Carley, W. A.	Saint Paul
	Carlisle, J. C.	Rochester
	Carlson, A. E.	Warren
	Carlson, C. E.	Alexandria
	Carlson, J. V.	Westbrook
	Carlson, Lawrence	Minneapolis
	Carlson, L. T.	Minneapolis
	Carlson, N. C.	Newport Beach, Calif.
	Carlson, R. E.	Stillwater
	Caron, R. P.	Minneapolis
	Carr, David T.	Rochester
†	Carroll, T. T.	Rochester
	Carroll, Wm. C.	Saint Paul
	Carryer, H. M.	Rochester
	Carson, Willis	Rochester
	Caspers, C. G.	Minneapolis
†	Catlin, J. J.	Buffalo
	Catlin, T. J.	Buffalo
	Cavanor, F. T.	Minneapolis
	Cedarleaf, C. B.	Saint Paul
	Ceder, E. T.	Minneapolis
	Ceplecha, S. F.	Redwood Falls
	Cervenka, C. F.	New Prague
	Chadbourn, C. R.	Saint Paul
	Chadbourn, W. A.	Litchfield
	Chalgren, Wm. S.	Mankato
	Challman, S. A.	Minneapolis
	Chambers, W. C.	Blue Earth
	Chance, D. P.	Rochester
	Chapman, C. B.	Minneapolis
	Chapman, T. L.	Duluth
	Chatterton, C. C.	Saint Paul
	Chavez, D. A.	Minneapolis
	Chermak, F. G.	International Falls
	Chesley, A. J.	Saint Paul
	Chester, M. D.	Minneapolis
	Childs, D. S., Jr.	Rochester
	Chisholm, T. C.	Minneapolis
	Chriss, John W.	Rochester
	Christensen, C. H.	Duluth
	Christensen, E. E.	Winona
	Christensen, L. E.	Minneapolis
‡	Christensen, Mentor	Mississippi
	Christensen, N. A.	Rochester
	Christiansen, A.	Saint Paul
	Christiansen, H. A.	Jackson
	Christianson, H. W.	Minneapolis
	Christoferson, L. A.	Fargo, N. D.
	Chunn, S. S.	Pipestone
	Clagett, O. T.	Rochester
	Clark, C. L.	Duluth
	Clark, Elizabeth, A.	Duluth
	Clark, H. B.	Saint Cloud
	Clark, H. B., Jr.	Minneapolis
	Clark, I. T.	Duluth
	Clark, L. Wm.	Spring Valley
	Clark, P. I., III	Rochester
	Clarke, E. K.	Minneapolis
	Clay, L. B.	Minneapolis
	Claydon, H. F.	Red Wing
	Cleaves, Wm. D.	Sauk Centre
†	Clement, J. B.	Lester Prairie
	Clifford, G. W.	Alexandria
	Closuit, F. C.	Aitkin
	Clothier, E. F.	Elk River
	Cochrane, B. B.	Saint Paul
	Cochrane, R. F.	Minneapolis
	Coddon, W. D.	Saint Paul
	Coe, John I.	Minneapolis
	Cohen, B. A.	Minneapolis
	Cohen, E. B.	Minneapolis
	Cohen, Ellis N.	Saint Paul
†	Cohen, M. M.	Detroit
	Cohen, S. S.	Oak Terrace
	Colby, W. L.	Saint Paul
	Cole, W. H.	Saint Paul
	Coleman, J. B.	Saint Paul
	Coll, J. J.	Duluth
†	Collie, H. G.	Saint Petersburg, Fla.
†	Collins, A. N.	Moose Lake
	Collins, J. S.	Wabasha
	Combacker, L. C.	Fergus Falls
	Comfort, M. W.	Rochester
	Condit, Wm. H.	Minneapolis
	Conley, F. W.	Duluth
	Conley, R. H.	Mankato
	Connolly, C. J.	Saint Paul
	Connor, C. E.	Saint Paul
	Cook, C. K.	Saint Paul
	Cook, J. M.	Staples
	Coombs, C. H.	Cass Lake
‡	Cooley, J. C.	Rochester
	Cooney, J. F.	Rochester
	Cooper, C. C.	Saint Paul
	Cooper, J. P.	Excelsior
	Cooper, M. D.	Winnebago
	Cope, H. B.	Virginia
*	Corbett, J. F.	Minneapolis
	Corniea, A. D.	Minneapolis
	Correa, D. H.	Minneapolis
†	Corrigan, J. E.	Minneapolis
	Cosgriff, J. A.	Olivia
	Cosgriff, J. A., Jr.	Olivia
	Coulter, H. E.	Madelia
	Countryman, R. S.	Saint Paul
	Courtin, R. F.	Rochester
	Covell, W. W.	Saint Peter
	Coventry, M. B.	Rochester
†	Coventry, Wm. A.	Duluth
	Coventry, Wm. D.	Duluth
	Covey, K. W.	Mahnomen
	Cowan, D. W.	Minneapolis
	Cowley, H. S.	Rochester
	Craig, C. C.	International Falls
	Craig, D. M.	Saint Paul
	Craig, Joe D.	Rochester
	Craig, M. Elizabeth	Minneapolis
	Craig, W. McK.	Rochester
	Cranmer, R. R.	Minneapolis
	Cranston, R. W.	Minneapolis
	Craychee, W. A.	Fairmont
	Creevy, C. D.	Minneapolis
	Creighton, R. H.	Minneapolis
†	Crenshaw, J. L.	Sanford, Fla.
	Critchfield, L. R.	Saint Paul
	Crombie, F. J.	North Saint Paul
	Cronwell, B. J.	Austin
	Crow, E. R.	Ah-Gwah-Ching
	Crowley, J. H.	Saint Paul
‡	Crudo, V. D.	Ft. Bragg, N. C.
	Crump, J. W.	Saint Paul
	Crumpacker, E. L.	Minneapolis
	Culligan, J. M.	Saint Paul
	Culligan, L. C.	Minneapolis
	Culver, L. G.	Saint Paul
	Culp, O. S.	Rochester
	Cundy, D. T.	Minneapolis
	Curtis, R. A.	LeCenter
	Curtiss, R. K.	Rochester
	Cushing, R. L.	Brainerd
†	Cutts, George	Minneapolis

	Dady, E. E.	Minneapolis
	Daehlin, Rolf	Fergus Falls
	Dahl, E. O.	Minneapolis
†	Dahl, G. A.	Mankato

Dahl, J. A. ....Minneapolis
Dahle, M. B. ....Olivia
Dahlin, D. C. ....Rochester
Dahlstet, J. P. ....Mankato
† Daignault, Oscar ....Benson
Dale, L. N. ....Red Lake Falls
Danford, K. A. ....Mahnomen
† Danielson, K. A. ....Litchfield
Danielson, L. ....Litchfield
Dargay, C. P. ....Minneapolis
Daugherty, G. W...........Rochester
Davis, A. C. ....Rochester
Davis, Edw. V. ....Saint Paul
Davis, Geo. D. ....Rochester
Davis, J. C. ....Minneapolis
Davis, L. T. ....Wadena
Davis, L. F. ....Wadena
† Davis, N. B. ....Rochester
Davis, R. D. ....Waseca
‡ Davis, R. E. ....Geneva, N. Y.
Davis, T. L. ....Wadena
Davis, Wm. I.................Mound
Dawson, J. R. ....Saint Paul
Day, Lois A. ....Saint Paul
Dearing, Wm. H., Jr. .....Rochester
† DeBoer, Hermanus ....Edgerton
Decker, C. H. ....Saint Paul
Decker, D. G. ....Rochester
† Dedolph, Theo. H. ....Braham
Delmore, J. L. ....Roseau
Delmore, J. L., Jr. ....Roseau
Delmore, R. J. ....Roseau
Del Plaine, C. W. ....Minneapolis
Demo, R. A. ....Albert Lea
Denman, A. V. ....Mankato
Denton, C. ....Rochester
Derauf, B. I..............Saint Paul
Deters, D. C. ....Saint Paul
Detjen, E. D..............Big Fork
Deveraux, T. J. ....Wayzata
Devine, K. D. ....Rochester
DeWeerd, J. H. ....Rochester
Deweese, W. J. ....Bemidji
Dewey, D. H. ....Owatonna
Dickson, F. H., Jr. ....Proctor
Diehl, H. S. ....Minneapolis
Diessner, G. R. ....Rochester
Diessner, H. D. ....Minneapolis
Dillard, P. G., Jr. .... Hickory Corners, Mich.
Dille, D. E. ....Litchfield
‡ Doane, J. C. ....Rochester
Dockerty, M. B. ....Rochester
Dodds, Wm. C. ....Detroit Lakes
Dodge, Henry W., Jr. .....Rochester
Doerr, John C. ....Rochester
Doherty, E. M. ....New Prague
Doman, V. Wm. ....Lakefield
* Doms, H. C. A. ....Slayton
Donald, T. C., Jr. ....Anniston, Ala.
Donaldson, C. S. ....Foley
† Donin, J. F. ....Rochester
Donoghue, F. E. ....Rochester
Donohue, P. F. ....Saint Cloud
Donovan, D. L. ....Albert Lea
Dordal, John ....Sacred Heart
Dorge, R. I. ....Minneapolis
Dornberger, G. R. ....Rochester
Dornblaser, H. B.......Minneapolis
Dorsey, G. C. ....Minneapolis
Douglass, B. E. ....Rochester
‡ Dovenmuehle, R. H. ....Hastings
Doxey, G. L. ....Minneapolis
Doyle, G. C. ....Duluth
Doyle, L. O. ....Minneapolis
Drake, C. B. ....Saint Paul
Drake, C. R. ....Minneapolis
† Drake, F. A. ....Lanesboro
† Dredge, H. P. ....Sandstone
Dredge, T. E. ....Minneapolis
Drexler, Geo. W. ....Blue Earth
Drill, Herman E. ....Hopkins
† Drips, Della G. ....Rochester
Dry, Thos. J. ....Rochester
Dubbe, F. H. ....New Ulm
DuBois, J. F. ....Sauk Centre
DuBois, J. F., Jr. .....Sauk Centre
Duerr, Eleanor E. ....Saint Paul
Duff, E. R. ....Saint Paul
Duncan, D. K.............Rochester
Duncan, J. W. ....Moorhead
† Dungay, N. S. ....Northfield
Dunlap, E. H. ....Minneapolis
Dunlap, R. W. ....Rochester
Dunn, James N. ....Saint Paul
Dupont, J. A. ....Excelsior
Duryea, W. M. ....Minneapolis
Dutton, C. E..........Minneapolis
Dvorak, B. A..........Minneapolis
Dwan, P. F............Minneapolis
Dworsky, S. D..........Minneapolis
Dysterheft, A. F...........Gaylord

Earl, Geo. A.............Saint Paul
Earl, John R.............Saint Paul
Eaton, L. M..............Rochester
Eberly, T. S.................Benson
† Eberlin, Edw. A...........Glenwood
Eckdale, J. E..............Marshall
Eckman, P. F................Duluth
Eckman, R. J................Duluth
Ede, Mitchell ....Rochester
Edlund, Gustaf...........Saint Paul
Edwards, J. E.............Rochester
Edwards, J. W..........Saint Paul
Edwards, L. G..........Saint Paul
* Edwards, R. T.......Columbus, Ohio
Edwards, T. J...........Saint Paul
Egge, S. G..............Albert Lea
Eginton, C. T...........Saint Paul
Ehrenberg, C. J..........Minneapolis
Ehrlich, S. P............Minneapolis
Eich, M. A..............Minneapolis
Eichhorn, E. P..........Minneapolis
Eide, O. A................Hancock
Eiler, John ....Park Rapids
Eisenstadt, D. H........Minneapolis
Eisenstadt, Wm. S.......Minneapolis
Eitel, Geo. D...........Minneapolis
† Ekbladt, J. W...............Duluth
Eklund, C. D................Duluth
Ekstrand, L. M.............Wabasha
Elias, Frank .J...............Duluth
Eliot, Johan W............Rochester
Elkins, Earl C............Rochester
Ellertson, L. M..........Albert Lea
Ellinger, A. J..............Willmar
* Ellington, A. R.......Detroit Lakes
Ellis, Earl Wm................Elgin
Ellis, F. H...............Rochester
Ellison, D. E...........Minneapolis
Ellison, F. E.............Monticello
Elsey, Edw. M............Glenwood
† Elsey, James R...........Glenwood
Ely, O. S.................Saint Paul
Emanuel K. Wm...............Duluth
Emerson, E. C...........Saint Paul
Emerson, E. E...............Osakis
Emmons, R. W..........Saint Paul
Emond, A. J.............Farmington
Emond, J. S.............Farmington
Endress, E. K...........Saint Paul
Engberg, E. J.............Faribault
Engel, R. C. H..........Cambridge
Engelhart, P. C.........Minneapolis
† Englund, E. F..........Minneapolis
Engstrand, O. J.........Minneapolis
Engstrom, G. F............Belgrade
Engstrom, Robert..........Mankato
Enroth, O. E.............Saint Paul
Eppard, R. M...............Cloquet
Epperson, D. P...........Rochester
Erdal, O. A..............Albert Lea
Erich, J. B...............Rochester
Erickson, A. O.........Long Prairie
Erickson, C. O..........Minneapolis
Erickson, D. J............Rochester
Erickson, Eskil ....Halstad
Erickson, G. P.............Hibbing
Erickson, L. F..........Minneapolis
Erickson, R. F..........Minneapolis
Ericson, R. M..............Wayzata
Ericson, Swan.............LeSueur
† Ernest, G. C. H...St. Petersburg,
Ersfeld, M. P............Saint Paul
Erskine, G. M.........Grand Rapids
Ertel, E. Q...............Ellendale
† Eshelby, E. C...........Saint Paul
Esser, R. A...............Rochester
Estes, J. E...............Rochester
Estrem, C. O...........Fergus Falls
Estrem, R. D...........Fergus Falls
Estrem, R. L...........Fergus Falls
Estrem, T. A...............Hibbing
† Eusterman, G. B..........Rochester
Eustermann, J. J..........Mankato
Evans, E. T.............Minneapolis
† Evans, R. D............Minneapolis
† Evarts, A. B.............Rochester
Evert, J. A., Jr.........Saint Paul
* Ewens, H. B...............Virginia

Faber, J. E...............Rochester
† Fahey, Edw. W.........Saint Paul
Falsetti, F. P............Rochester
Fangman, R. J., Jr. .... Colorado Springs, Colo.
Fansler, W. A...........Minneapolis
Farkas, J. V.............Saint Paul
† Farrish, R. C.............Sherburn
Faulkner, J. W............Rochester
Fawcett, A. M.............Renville
Fawcett, K. R................Duluth
Fee, John G..............Saint Paul
Feeney, J. M...........Minneapolis

Feeney, Michael J........Minneapolis
Feferman, Martin E.....Minneapolis
Feigal, D. W................Wayzata
Feigal, Wm. M.....Thief River Falls
Feinberg, Philip ....Minneapolis
Feinstein, J. Y..........Minneapolis
Felion, A. J.............Saint Paul
Fellows, M. F................Duluth
Fenger, E. P. K.........Oak Terrace
† Ferguson, J. C..........Saint Paul
Ferguson, Wm. C.....Walnut Grove
Ferrell, C. R..........Grand Rapids
Ferris, D. O..............Rochester
Fesenmaier, O. B..........New Ulm
Fesler, H. H............Saint Paul
Feuling, J. C.................Duluth
Fidelman, N. E.........Minneapolis
Field, A. H..............Farmington
Fingerman, D. L.........Minneapolis
Fink, D. L...............Saint Paul
Fink, Leo M............Minneapolis
Fink, W. H.............Minneapolis
Finkelnburg, W. O..........Winona
Fisch, H. M..................Austin
Fischer, J. R.......Blooming Prairie
Fischer, M. McC..............Duluth
Fisher, D. W.............Saint Paul
Fisher, Isadore I........Minneapolis
Fisher, J. M.................Willmar
Fisketti, Henry...............Duluth
† Fitzgerald, D. F...........Wayzata
† Fitzgerald, E. T.......Rialto, Calif.
Fitzsimons, Wm. E.........Brainerd
Fjelstad, C. A..........Minneapolis
Flagg, G. B............Minneapolis
Flanagan, H. F..........Saint Paul
Flanagan, L. G...............Austin
Flancher, L. H...........Crookston
Flannery, H. F...........Saint Paul
Fleeson, Wm. H.........Minneapolis
† Fleming, A. S.......Clearwater, Fla.
Fleming, D. S..............Hopkins
Fleming, T. N...........Saint Cloud
Flesche, B. A............Lake City
Fliehr, R. R............Minneapolis
Flink, E. B.............Minneapolis
‡ Flinn, J. B.......Pt. Blakely, Wash.
Flinn, T. E..................Remer
‡ Floersch, A. J.........Seattle, Wash.
Flom, M. G...............Zumbrota
Flynn, B. F.................Hibbing
Flynn, L. L., Jr.........Saint Paul
Fogarty, C. Wm., Jr.....Saint Paul
† Fogarty, C. Wm..........Saint Paul
Fogelberg, E. J..........Saint Paul
Foker, L. W............Minneapolis
Foley, F. E. B...........Saint Paul
Folken, F. G............Albert Lea
Ford, B. C................Marshall
Ford, Wm. H............Minneapolis
Forney, W. D.............Rochester
Forsythe, J. R...........Saint Paul
Fortier, G. M. A.......Little Falls
Foss, E. L................Rochester
Foster, O. W...........Minneapolis
Fowler, L. H...........Minneapolis
Fox, J. R...............Minneapolis
Franchere, F. Wm.......Lake Crystal
Francis, D. W...........Morristown
Frane, D. B.............Minneapolis
Frank, L. M. ....Hartford, Conn.
Franklin, G. W............Northome
Fredericks, Geo. M.......Minneapolis
Ffrederickson, Alice C.....Willmar
* Frederickson, Guy U. Y.....Willmar
Fredricks, M. G..............Duluth
Freedman, M. A..........Rochester
Freedman, R. H...........Rochester
*†Freeman, C. D. ...Balsam Lake, Wis.
Freeman, C. D., Jr........Saint Paul
Freeman, Craig ....Minneapolis
Freeman, D. W..........Minneapolis
Freeman, G. I............Saint Paul
Freeman, J. G.........Fergus Falls
† Freeman, J. P............Glenville
Freidman, L. L..........Saint Paul
Freligh, W. P...........Albert Lea
French, L. A...........Minneapolis
† Freymann, John G....Boston, Mass.
Fricke, R. E..............Rochester
Fried, L. A.............Minneapolis
Friedell, Aaron ....Minneapolis
Friedell, George ....Ivanhoe
Friedman, H. S.........Minneapolis
Friedman, Jack ....Minneapolis
‡ Friend, C. A...Ft. Leonard Wood, Mo.
Friesleben, Wm. ....Sauk Rapids
Frisch, David ....Minneapolis
Frisch, F. P.................Willmar
Fritsche, Albert ....New Ulm
Fritsche, C. J.............New Ulm
Fritsche, Theo. R..........New Ulm
Fritz, W. L..............Saint Paul

Froats, C. W..............Saint Paul
† Frost, E. H..................Willmar
Frost, J. B..............Minneapolis
Frost, R. H. ....Oak Terrace
Frykman, H. M..........Minneapolis
Fugina, Geo. R............Mankato
Fuller, Alice H..........Minneapolis
Fuller, B. F..............Saint Paul
Fuller, Josiah ....Rochester
Funk, V. K............Oak Terrace
Furman, Lucie Christine.........
Minneapolis
Furnell, D. Q............Saint Paul
Futch, William D.........Rochester

Gaard, R. C............Minneapolis
Gaida, J. B............Saint Cloud
† Gaines, E. C...........Buffalo Lake
† Gallagher, B. J.............Waseca
‡ Gallagher, W. B.....Vienna, Austria
Gallet, L. E............Minneapolis
† Galligan, Margaret M...Minneapolis
Galloway, J. B..........Minneapolis
† Gambill, C. M.............Rochester
Gambill, E. E............Rochester
Gammell, J. H...........Minneapolis
Garbrecht, A. Wm.........Saint Paul
Gardner, V. H............Fairmont
Gardner, W. P...........Saint Paul
Garlock, A. V...............Bemidji
Garlock, D. H.............Bemidji
Garlock, G. L...............Bemidji
Garrow, D. M.............Saint Paul
Garske, G. L............Minneapolis
Garten, J. L............Minneapolis
Gastineau, C. F...........Rochester
Gaunt, W. D.............Rochester
Gaviser, David..........Minneapolis
Gehlen, J. N.............Saint Paul
Geraci, J. E..............Rochester
Gericke, J. T., Jr..........Glenwood
Geurs, B. R................Mankato
Ghent, C. H..............Saint Paul
Ghormley, K. O...........Rochester
Ghormley, R. K...........Rochester
Ghostley, Mary C.........Puposky
Gibb, R. P...............Rochester
Gibbs, E. C..............Saint Paul
Gibbs, R. W............Minneapolis
Giberson, R. G...........Rochester
‡ Gibenhain, J. N.......Evanston, Ill.
Giebrink, R. R...........Minneapolis
Giere, J. C.............Minneapolis
Giere, R. W............Minneapolis
Giere, S. W.................Benson
Giesen, A. F.............Starbuck
* Giessler, P. W..........Minneapolis
† Giffin, H. Z...............Rochester
Gifford, R. W., Jr........Rochester
Gilbert, M. G...........Minneapolis
Gilkey, S. E.............Saint Paul
Gillespie, D. R...........Saint Paul
Gillespie, M. G...............Duluth
Gilman, L. C...............Willmar
† Gilmore, Rowland ....Crookston
Gingold, B. A...........Minneapolis
Ginsberg, R. L...........Rochester
† Giroux, A. A................Mankato
Girvin, R. B............Minneapolis
Gjerde, Wm. P...........Lake City
Glabe, R. A..............Plainview
Gleason, W. A..........Saint Paul
Goblirsch, A. P.........Sleepy Eye
Goehrs, G. H...........Saint Cloud
Goehrs, H. Wm.........Saint Cloud
Goldberg, I. M..........Minneapolis
Goldish, D. R................Duluth
Goldman, T. I.........Minneapolis
Goldner, M. Z...........Minneapolis
Goldsmith, J W...........Saint Paul
Goldstein, N. P..........Rochester
† Goltz, E. V.............Saint Paul
Goltz, N. F..............Saint Paul
Goltz, R. Wm...........Minneapolis
Good, C. A., Jr...........Rochester
Good, H. D.............Minneapolis
Goodlad, J. H.............Rochester
Goodman, Chase ....Virginia
Gordon, P. E...........Minneapolis
Gordon, S. S............Minneapolis
Goss, H. C..................Glencoe
Goss, Martha D.............Glencoe
Gowan, L. R.................Duluth
Graham, G. G............Rochester
Grahek, J. P.....................Ely
Grais, M. L.............Minneapolis
Grant, H. W.............Saint Paul
Grant, J. C............Sauk Centre
Grattan, Robert T.........Rochester
Gratzek, F. R. E.........Minneapolis
Gratzek, Thos. ....Saint Paul
Grau, R. K..............Saint Paul

* Grave, Floyd ....Minneapolis
Graves, R. B..............Red Wing
* Graves, W. N..................Duluth
† Gray, F. D................Marshall
Gray, H. K...............Rochester
Gray, R. C.............Minneapolis
Green, R. A............Minneapolis
Green, Wilson, Jr.........Rochester
Greenberg, A. J.........Minneapolis
Greene, D. E.......Thief River Falls
Greene, L. F.............Rochester
Greenfield, Irving ......Minneapolis
Greenfield, Wm. T...........Cokato
† Greishiemer, E. M...Philadelphia, Pa.
‡ Griebe, G. L.......Ft. Lewis, Wash.
‡ Griffin, G. D., Jr...Boswell, New Mex.
Griffin, R. P.................Benson
Grimes, B. P...........Saint Peter
Grimes, Marian ....Minneapolis
Grindlay, J. H............Rochester
Grinley, A. V..........Grand Rapids
Grise, Wm. B...............Austin
Grogan, J. S................Wadena
Gronvall, P. R...........Minneapolis
Groschupf, Theo. P.........Bemidji
Grose, F. N................Clarissa
Gross, J. B................Rochester
Grotting, J. K...........Minneapolis
† Gruenhagen, A. P.........Saint Paul
Grundset, O. J............Montrose
Gruys, R. I................Windom
Guilbert, G. D.......Legion, Texas
Guilfoile, P. J................Delano
Gulley, J. L...............Rochester
Gullickson, Glenn, Jr.....Minneapolis
† Gullixson, Andrew...Longmont, Colo.
Gully, R. J..............Cambridge
Gunlaugson, F. G........Minneapolis
Gushurst, E. G..........Minneapolis
Gustafson, M. B...........Rochester
Gustason, H. T..........Minneapolis
Guy, Jack A...........New London

Haavik, J. E.................Duluth
Habein, H. C..............Rochester
Haberer, Helen R.......Minneapolis
Haberman, Emil ....Osakis
Haes, Julius E.............Mankato
Haesly, Warren W.........Rushford
Hagedorn, A. B............Rochester
Hagen, O. J..............Moorhead
Hagen, P. S..............Saint Paul
Hagen, W. S...........Minneapolis
† Haggard, G. D..........Minneapolis
† Haines, J. H..............Stillwater
Haines, S. F..............Rochester
‡ Halbert, J. J.................Duluth
Halenbeck, P. L.........Saint Cloud
Hall, Bernard ....Saint Paul
Hall, H. B.............Minneapolis
Hall, W. H.............Minneapolis
Hall, Wm. E............Maple Lake
Hallberg, C. A..........Minneapolis
Hallberg, O. E...........Rochester
† Hallenbeck, D. F...........Rochester
Hallenbeck, G. A..........Rochester
Halliday, P. V................Duluth
Hallin, R. P.............Worthington
Halloran, W. H.............Jackson
Halme, W. B...............Wadena
Halpern, D. J.............Brewster
Halpin, J. E..............Rush City
Halvorsen, D. K...........Owatonna
Halvorson, J. W............Goodhue
Hammar, L. W.............Mankato
Hammes, F. M............Saint Paul
Hammes, E. M., Jr........Saint Paul
Hammond, J. F..........Saint Paul
† Haney, C. J..................Duluth
Hankerson, R. G.....Minnesota Lake
Hanlon, D. G..............Rochester
Hannah, H. B...........Minneapolis
Hanover, R. D...International Falls
Hansen, C. O...........Minneapolis
Hansen, E. W..........Minneapolis
Hansen, O. S...........Minneapolis
Hansen, R. M...........Minneapolis
Hansen, Theo. M.........Albert Lea
† Hanson, A. M.............Faribault
Hanson, E. O...............Carlton
Hanson, E. C........New York Mills
Hanson, H. T...........Minneapolis
Hanson, H. B............Saint Paul
Hanson, H. V...........Minneapolis
Hanson, H. H.........Houston, Tex.
Hanson, J. W............Northfield
Hanson, Lewis ....Frost
Hanson, M. B...........Minneapolis
Hanson, M. C. L........Minneapolis
Hanson, N. O.............Rochester
‡ Hanson, S. M...........Sparta, Wis.
Hanson, Wm. A. H.....Minneapolis

Happe, L. J. ....Minneapolis
Harbaugh, J. T..........Saint Paul
Harmon, G. E............Saint Paul
Harrington, S. W.........Rochester
Harris, C. N...............Hibbing
Harris, Evelyn S.......Fergus Falls
Harris, L. E..............Rochester
Harris, L. D............Minneapolis
Harrison, P. W.........Worthington
Hart, Wm. E............Monticello
Hartfiel, H. A...........Montevideo
Hartfiel, Wm. F...........Saint Paul
Hartig, H. A............Minneapolis
Hartig, Marjorie ....Saint Paul
Hartjen, J. K...............Bemidji
Hartley, E. C............Saint Paul
Hartman, Evelyn ....Minneapolis
Hartnagel, G. F...........Red Wing
Hartung, E. H...........Claremont
Hartwich, R. E..............Winona
* Hartzell, T. B..........Minneapolis
* Haskell, A. D............Alexandria
Hass, F. M.............Minneapolis
* Hassett, M. F. ....Saint Paul
Hassett, R. G..............Mankato
Hastings, D. R..........Minneapolis
Hastings, D. W.........Minneapolis
Hatch, W. E. ....Duluth
Hauch, E. W. ....Pomona, Calif.
Hauge, E. T............Minneapolis
Hauge, M. I..............Clarkfield
Haugen, G. W...........Minneapolis
Haugen, J. A...........Minneapolis
Hauser, G. W..........Minneapolis
Hauser, V. P.............Saint Paul
Havel, R. J.............Minneapolis
Haven, W. K...........Minneapolis
Havens, F. Z..............Rochester
Havens, Fred Z., Jr.......Rochester
Havens, J. G. W.............Austin
Hawkinson, R. P.........Minneapolis
Hawley, II, G. M. B......Red Wing
Hayes, A. F.............Saint Paul
Hayes, J. M...........Minneapolis
Hayes, M. F.............Nashwauk
Hays, A. T.............Minneapolis
Head, D. P.............Minneapolis
Healy, M. M. ....Washington, D. C.
Healy, R. T....................Pierz
Hebbel, Robt. ....Minneapolis
Hebeisen, M. B..............Chaska
Heck, F. J................Rochester
Heck, W. W.............Saint Paul
* Hedback, A. E.........Minneapolis
Hedberg, G. A............Nopeming
Hedemark, H. H.........Ortonville
Hedemark, T. A.........Ortonville
Hedenstrom, F. G........Saint Paul
* Hedenstrom, L. H........Cambridge
Hedenstrom, P. C..........Marshall
Hedin, R. F.............Red Wing
† Hegge, O. H.................Austin
Hegge, R. S.................Austin
Heiam, Wm. C.................Cook
Heiberg, E. A.........Fergus Falls
Heiberg, O. M.........Worthington
† Heilman, D. M. H.......Rochester
Heilman, F. R............Rochester
Heim, R. R.............Minneapolis
Heimark, J. T.............Fairmont
Heine, Geo. W.........Little Falls
Heinz, Ivy B.............Shakopee
Heinz, L. H...............Shakopee
Heise, Carl v.R. ....Winona
Heise, Paul ....Winona
Heise, Philip R.............Winona
† Heise, Wm. F. C...........Winona
Heise, Wm. v.R. ....Winona
Heisler, J. J............Minneapolis
Helden, R. A.............Rochester
Helferty, J. K.........Boise, Idaho
† Helland, G. M.........Spring Grove
† Helland, J. W..........Spring Grove
† Helmholz, H. F...........Rochester
Helseth, H. K.........Pelican Rapids
† Hempstead, B. E..........Rochester
* Hempstead, Werner......Minneapolis
Henderson, A. T. G...North St. Paul
Henderson, E. D...........Rochester
Henderson, J. W..........Rochester
† Henderson, M. S.........Rochester
Hendricks, E. J..........Saint Paul
† Hendrickson, J. F........Minneapolis
* Hendrickson, R. R.........Crookston
Hengstler, Wm. H........Saint Paul
Henrikson, E. C.........Minneapolis
Henry, C. T...................Milaca
† Henry, C. E.........Kirksville, Mo.
Henry, H. W..............Hinckley
Henry, J. E...................Milaca
Henry, M. O...........Minneapolis
Hensel, C. N............Saint Paul
Herbert, C. M., Jr........Rochester

Herbert, W. L. .... Minneapolis
Herbst, R. F. .... Willmar
Herman, S. M. .... Saint Paul
Hermann, H. W. .... Minneapolis
Hermanson, P. E. .... Hendricks
Heron, R. C. .... Saint Paul
Herrell, W. E. .... Rochester
Herrmann, E. T. .... Saint Paul
Hertel, G. E. .... Austin
Hertz, M. J. .... Saint Paul
Hesdorffer, M. B. .... Minneapolis
Hetrick, M. A. .... Rochester
† Hewitt, Edith S. .... Rochester
† Hewitt, R. M. .... Rochester
† Heyerdale, O. C. .... Rochester
† Higgins, J. H. .... Minneapolis
Higgs, W. W. .... Park Rapids
Hightower, N. C., Jr. .... Rochester
Hildebrand, J. E. .... Bemidji
Hilding, A. C. .... Duluth
† Hilger, A. Wm. .... Saint Paul
Hilger, J. A. .... Saint Paul
Hilger, L. D. .... Saint Paul
Hilker, M. D. .... Saint Paul
Hill, Earl .... Minneapolis
Hill, Elmer M. .... Minneapolis
Hill, F. E. .... Duluth
Hill, J. R. .... Rochester
† Hillis, S. J. ..... East Bradenton, Fla.
Hilsabeck, J. R. .... Rochester
Hinckley, R. G. .... Minneapolis
Hinderaker, H. P. .... Bird Island
Hines, C. R., Jr. .... Rochester
Hiniker, L. P. .... Saint Paul
Hinz, W. E. .... Willmar
Hirschboeck, F. J. .... Duluth
Hirschfield, F. R. .... Minneapolis
† Hitchcock, C. R. .... Minneapolis
Hochfilzer, J. J. .... Saint Paul
* Hodapp, R. J. .... Willmar
Hodapp, R. V. .... Willmar
Hodgson, Jane E. .... Saint Paul
Hodgson, J. R. .... Rochester
Hoehn, David .... Holdingford
Hoeper, P. G. .... Mankato
Hoff, H. O. .... Duluth
Hoffbauer, F. W. .... Minneapolis
Hoffert, H. E. .... Minneapolis
‡ Hoffman, M. S. .... Rochester
Hoffman, R. A. .... Minneapolis
Hoffman, W. L. .... Minneapolis
Hoffmann, G. N. .... Cannon Falls
‡ Hoganson, D. E. .... Bemidji
Hogben, Chas. A. M. .... Rochester
† Holcomb, O. W. .... Saint Paul
† Hollands, W. H. .... Fisher
Hollenhorst, R. W. .... Rochester
Hollinshead, W. H. .... Saint Paul
Holm, D. F. .... Willmar
Holm, H. H. .... Glencoe
† Holm, P. F. .... Sarasota, Fla.
Holman, C. B. .... Rochester
Holmberg, C. J. .... Minneapolis
Holmberg, Leroy J. .... Canby
Holman, R. W. .... Saint Paul
Holmes, A. E. .... Rush City
Holmstrom, C. H. .... Warren
‡ Holt, A. H. .... Rochester
Holt, J. E. .... Saint Paul
Holzapfel, F. C. .... Minneapolis
Hood, L. T. .... Rochester
Hood, R. T. .... Rochester
Hom, L. Y. W. .... Battle Lake
‡ Hopkins, G. W. .... Saint Paul
Horns, H. L. .... Minneapolis
Horns, R. C. .... Minneapolis
Horton, B. T. .... Rochester
Hottinger, R. C. .... Janesville
† Houkom, Bjarne ....
Luskoto T. T., East Africa
Houkom, S. S. .... Duluth
Houle, R. J. .... New Brighton
† House, Z. E. .... Burbank, Calif.
Houston, D. M. .... Park Rapids
Hovde, Rolf .... Winthrop
Hovland, M. L. .... Minneapolis
Howard, E. G. .... Mapleton
Howard, M. I. .... Mankato
Howard, M. A. .... Saint Paul
Howard, R. B. .... Minneapolis
Howard, S. E. .... Minneapolis
Howard, W. S. .... Saint Paul
Howe, N. W. .... Saint Paul
Howell, Carter W. .... Minneapolis
Howell, L. P. .... Rochester
Hoyer, L. J. .... Windom
Hubbard, O. E. .... Brainerd
Hubbard, T. B., Jr. .... Minneapolis
Hubbard, Theo. F. .... Rochester
Hubin, E. G. .... Sandstone
Hubler, W. L. .... Caldwell, Ida.
Hudec, E. R. .... Echo
Hudson, G. E. .... Minneapolis
Hudspeth, Wm. T. .... Madison
Huenekens, E. J. .... Minneapolis
† Huffington, H. L. .... Mankato
Huizenga, K. A. .... Rochester
Hullsiek, H. E. .... Saint Paul
Hullsiek, R. B. .... Minneapolis
Hultgen, Wm. J. .... Saint Paul
† Hultkrans, J. C. .... Minneapolis
Hultkrans, R. E. .... Minneapolis
Humphrey, E. W. .... Moorhead
Humphrey, W. R. .... Stillwater
Hunt, A. B. .... Rochester
Hunt, R. S. .... Fairmont
Hunt, R. C. .... Fairmont
Hunt, William .... Rochester
† Hunt, A. F. .... Alhambra, Calif.
Hunter, J. S. .... Rochester
Hunter, R. C. .... Rochester
† Hurd, Annah .... Minneapolis
Hurwitz, M. M. .... Saint Paul
‡ Hutchinson, C. J. ... So. Boston, Mass.
Hutchinson, D. W. ..... Oak Terrace
Hutchinson, Henry ...... Moose Lake
† Huxley, F. R. .... Faribault
Hymes, Charles .... Minneapolis
Hynes, J. E. .... Minneapolis

† Ide, Arthur W. .... Saint Paul
Ide, Arthur W., Jr. .... Minneapolis
Idstrom, L. G. .... Minneapolis
Ikeda, Kano .... Saint Paul
Indihar, John E., Jr. .... Ely
Ingalls, E. G., Jr. .... Minneapolis
Ingebrigtson, E. K. G. ....
Galveston, Tex.
Ingerson, C. A. .... Saint Paul
Irvine, H. G. .... Minneapolis
Iverson, R. M. .... Minneapolis
Irvins, John C. .... Rochester
Ivy, John H. .... Rochester

Jackman, R. J. .... Rochester
Jacobs, D. L. .... Willmar
† Jacobs, J. C. .... Willmar
Jacobson, Clarence .... Chisholm
Jacobson, C. W. .... Breckenridge
Jacobson, F. C. .... Duluth
Jacobson, W. E. .... Minneapolis
James, J. W. .... Rochester
Jampolis, R. W. .... Rochester
Janecky, A. G. .... Baudette
James, J. M. .... Rochester
Janssen, M. E. .... Crookston
Jarvis, M. A. .... Saint Paul
Jay, A. R. .... Minneapolis
Jensen, A. M. .... Brownton
Jensen, H. C. .... Minneapolis
† Jensen, M. J. .... Minneapolis
Jensen, N. K. .... Minneapolis
Jensen, R. A. .... Minneapolis
Jensen, T. J. .... Duluth
Jensen, J. E. .... Stillwater
Jerome, E. E. K. .... Minneapolis
Jeronimus, H. J. .... Duluth
Jesion, J. W. .... Saint Paul
Jessico, C. M. .... Duluth
Jeub, Robert P. .... Minneapolis
Joffe, H. H. .... Duluth
Johanson, W. G. .... Saint Paul
Johnsen, D. S. .... Rochester
Johnson, Adeline McF. .... Rochester
Johnson, Aldridge F. .... Isle, Minn.
* Johnson, Arnold E. .... Minneapolis
Johnson, Arthur B. .... Minneapolis
Johnson, August E. .... Minneapolis
Johnson, C. E. .... Saint Paul
† Johnson, Carl E. .... Saint Paul
Johnson, Carl Eric .... Rochester
Johnson, C. M. .... Clarkfield
Johnson, Charles M., Jr. .... Rochester
Johnson, C. Percy .... Tyler
Johnson, D. A. .... Rochester
Johnson, D. E. ..... South Saint Paul
Johnson, D. L. .... Little Falls
Johnson, E. W. .... Bemidji
Johnson, Einer W., Jr. .... Rochester
Johnson, Edward A. .... Monterey
Johnson, Emil W. .... Minneapolis
* Johnson, Hans .... Kerkhoven
Johnson, H. C. ..... Thief River Falls
Johnson, Harry A. .... Minneapolis
Johnson, Herbert W. .... Rochester
Johnson, Hobart C. ... North Mankato
Johnson, Hugh A. .... Rochester
Johnson, J. A. .... Minneapolis
Johnson, J. W. .... Minneapolis
Johnson, Julius .... Minneapolis
Johnson, K. E. .... Duluth
Johnson, M. R. .... Minneapolis
Johnson, Norman P. .... Minneapolis
Johnson, Norton T. .... Minneapolis
Johnson, Olga H. .... Moorhead
Johnson, Orville H. ... Redwood Falls
Johnson, Ralph B. .... Lanesboro
Johnson, Ray G. .... Stillwater
Johnson, Reinald G. .... Minneapolis
Johnson, Reuben A. .... Minneapolis
Johnson, Robert E. .... Minneapolis
Johnson, Rudolph E. ... Ah-Gwah-Ching
Johnson, V. M. .... Dawson
Johnson, Wm. E. .... Morgan
Johnson, Wm. E. .... Rochester
Johnson, Y. T. .... Minneapolis
Johnsrud, L. W. .... Chisholm
Johnston, L. F. .... Winona
† Johnston, R. O. .... Hibbing
Jolin, F. M. .... Bovey
† Jones, Alvah W. .... Red Wing
Jones, E. Mendelssohn .... Saint Paul
Jones, David G. .... Minneapolis
‡ Jones, G. W. ... Ft. Leavenworth, Kan.
† Jones, H. W., Jr. .... Minneapolis
Jones, O. H. .... Mankato
Jones, Richard F. .... Rochester
Jones, R. H. .... Minneapolis
Jones, R. N. .... Saint Cloud
Jones, Robcliff V. .... Rochester
Jordan, Geo. I., Jr. .... Rochester
† Jordan, Kathleen, B. S. ....
Granite Falls
Jordan, L. S. .... Granite Falls
Josewich, Alex. .... Minneapolis
Josewski, R. J. .... Stillwater
Josselson, A. J. ..... Alhambra, Calif.
Joyce G. L. .... Rochester
Judd, E. S., Jr. .... Rochester
Judd, Walter H. ... Washington, D. C.
Juergens, H. M. .... Belle Plaine
‡ Juergens, John L. .... Belle Plaine
Juergens, M. F. .... Stillwater
Juers, E. H. .... Red Wing
† Juliar, R. O. .... Saint Clair
Jurdy, M. J. .... Minneapolis
Just, H. J. .... Hastings

Kaasa, L. J. .... Saint Peter
Kabrick, O. A. .... Saint Peter
Kalin, O. T. .... Minneapolis
Kallestad, L. L. .... Wayzata
Kamman, G. R. .... Saint Paul
† Kamp, Byron A. .... Albert Lea
Kanne, E. R. .... Brainerd
Kantar, Bruce L. .... Minneapolis
Kaplan, D. H. .... Saint Paul
Kaplan, Harold A. .... Minneapolis
Kaplan, J. J. .... Minneapolis
Kapsner, A. T. .... Princeton
‡ Karges, L. E. ... Camp Atterbury, Ind.
Karlen, Markle .... Rochester
Karleen, B. N. .... Jackson
Karleen, C. I. .... Minneapolis
* Karlstrom, A. E. .... Minneapolis
Karn, J. F. .... Ortonville
Karon, I. M. .... Saint Paul
Kasper, E. M. .... Saint Paul
Kath, R. H. .... Arlington
‡ Kath, Louis J. ... Long Beach, Calif.
Katz, Yale .... Minneapolis
Kaufman, E. J. .... Appleton
Kaufman, H. J. .... Minneapolis
Kaufman, W. B. .... Mankato
Kaufman, Wm. C. .... Appleton
Kavitt, H. H. .... Portland, O.
Kearney, R. W. .... Mankato
Kearns, Thomas P. .... Rochester
Keating, F. R., Jr. .... Rochester
Keefe, R. E. .... Saint Paul
Keil, M. A. .... Albert Lea
Keith, H. M. .... Rochester
† Keith, N. M. .... Rochester
Keithahn, E. E. .... Sleepy Eye
Kelby, G. M. .... Minneapolis
Kelly, A. C. .... Duluth
Kelly, A. H. .... Rochester
Kelly, J. F. .... Cold Spring
Kelly, James H. .... Wadena
Kelly, J. P. .... Minneapolis
Kelly, J. V. .... Saint Paul
† Kelsey, C. G. .... Hinckley
Kelsey, C. M. .... Saint Paul
Kemp, A. F. .... Mankato
Kenefick, E. V. .... Saint Paul
Kennedy, C. C. .... Minneapolis
Kennedy, G. L. .... Faribault
† Kennedy, Jane F. .... Minneapolis
Kennedy, R. L. J. .... Rochester
Kennedy, T. V. A. .... Rochester
*†Kennedy, Wm. A. .... Saint Paul
Kenney, F. D. .... Rochester
Kent, Geo. B., Jr. .... Rochester

Kenyon, T. J.	Saint Paul
Kerkhof, A. C.	Minneapolis
Kernohan, J. W.	Rochester
Kertesz, G. J. V.	Minneapolis
Kesting, Herman	Saint Paul
Kevern, J. L.	Henning
Keyes, J. D.	Winona
‡ Keyes, R. W.	Ely
Kiely, J. M.	Rochester
Kiely, James P.	Rochester
Kierland, R. R.	Rochester
Kiesler, Frank, Jr.	Minneapolis
Kilbrie, E. A.	Worthington
Kimmel, G. C., Jr.	Red Wing
† King, E. A.	Minneapolis
King, F. W.	Oak Terrace
† King, George L.	Saint Paul
Kinkade, B. R.	Ada
Kinports, E. B.	International Falls
Kinsella, T. J.	Minneapolis
† Kirk, G. P.	East Grand Forks
Kirklin, B. R.	Rochester
Kirklin, J. W.	Rochester
Kistler, A. J.	Minneapolis
‡ Kitzberger, P. J.	New Ulm
Kleckner, M. S.	Rochester
Klefstad, L. H.	Greenbush
Klein, Harry	Duluth
Klein, Henry N.	Saint Paul
Klein, Wm. A.	Duluth
Kletschka, H. D.	Thief River Falls
Klima, Wm. W.	Stewart
‡ Kline, R. F.	Alaska
Knapp, F. N.	Duluth
Knapp, M. E.	Minneapolis
Knight, C. D.	Shreveport, La.
Knight, E. G.	Swanville
Knight, R. T.	Minneapolis
† Knight, Ray R.	Minneapolis
Knoche, H. A.	Morgan
Knoll, W. V.	Duluth
Knudsen, Helen L.	Minneapolis
Knutson, G. A.	Hallock
Knutson, G. E.	Saint Paul
Knutson, L. A.	Spring Grove
Knutson, R. C.	Rochester
Knutsson, Katherine H.	Rochester
Koelsche, G. A.	Rochester
Koenigsberger, Chas.	Mankato
Koepcke, G. M.	Minneapolis
Kohlbry, Carl O.	Duluth
Kolars, James J.	Faribault
Koller, Hermann M.	Minneapolis
Koller, Louis R.	Minneapolis
Kooda, Jennings C.	Morris
Koop, Severin H.	Richmond
Korchik, John P.	Minneapolis
Korda, Henry A.	Pelican Rapids
Kortsch, Ferdinand P.	Prior Lake
Kostick, W. R.	Fertile
Kotchevar, F. R.	Eveleth
Kottke, F. J.	Minneapolis
Kotval, R. J.	Pipestone
Koucky, R. W.	Minneapolis
Koza, D. W.	Saint Paul
Kozberg, Oscar	Moose Lake
Kramer, S. E.	Anoka
Krause, C. W.	Fairmont
Kremen, A. J.	Minneapolis
Krezowski, T. K.	Saint Paul
Krieser, A. E.	Anoka
Kroboth, Jr. F. J.	Rochester
‡ Krout, R. M.	Rochester
Krueger, V. R.	Nopeming
Krusen, F. H.	Rochester
Kruzick, S. J.	Sleepy Eye
Krystosek, L. A.	Clara City
Kucera, F. J.	Hopkins
Kucera, L. B.	Lonsdale
Kucera, S. T.	Northfield
Kucera, Wm. J.	Minneapolis
Kucera, William J., Jr.	Minneapolis
Kugler, A. A.	Saint Paul
Kuhlmann, L. B.	Melrose
Kulstad, O. S.	Dodge Center
Kunkel, W. M., Jr.	Rochester
Kuske, A. W.	Saint Paul
Kusske, A. L.	New Ulm
† Kusske, B. W.	Saint Louis Park
Kusz, Clarence V.	Minneapolis
Kvale, W. F.	Rochester
Kvitrud, Gilbert	Saint Paul

LaBree, R. H.	Duluth
Lagaard, S. M.	Minneapolis
Laikola, L. A.	Adrian
† Laird, A. T.	Duluth
Lajoie, J. M.	Minneapolis
Lake, C. F.	Rochester
Lamp, C. M., Jr.	Rochester
Lang, L. A.	Minneapolis
Langhoff, A. H.	Mankato
Lannin, B. G.	Saint Paul
Lannin, D. R.	Saint Paul
Lapierre, A. P.	Minneapolis
Lapierre, J. T.	Minneapolis
Larabee, W. F.	Rochester
† Larsen, C. L.	Saint Paul
Larsen, F. Wm.	Minneapolis
Larson, Arnold	Detroit Lakes
Larson, C. M.	Minneapolis
Larson, Eva Jane	Saint Paul
Larson, G. E.	Cambridge
Larson, J. T.	South Saint Paul
Larson, K. R.	Saint Paul
Larson, L. M.	Minneapolis
‡ Larson, Laren	Watertown
Larson, Leonard M.	Oak Terrace
‡ Larson, Lorin J.	San Diego, Calif.
Larson, L. J.	Bagley
Larson, J. L.	Saint Paul
Larson, M. H.	Nicollet
Larson, O. E. H.	Zumbrota
Larson, P. N.	Minneapolis
Larson, R. H.	Anoka
Latterell, K. E.	Duluth
* Laughlin, J. T.	Grey Eagle
LaVake, R. T.	Minneapolis
* Law, S. G.	Minneapolis
Lax, M. H.	Saint Paul
Lay, C. L.	Rochester
Laymon, C. W.	Minneapolis
† Lazar, H. L.	Excelsior
Lazarte, J. A.	Rochester
Leahy, Bartholomew	Saint Paul
Leavenworth, R. O.	Saint Paul
† Leavitt, H. H.	Phoenix, Ariz.
Lebowske, J. A.	Minneapolis
Leck, P. C.	Austin
Lecklitner, M. D.	Minneapolis
Leddy, E. T.	Rochester
Lee, H. W.	Brainerd
Lee, N. J.	Tracy
† Lee, W. N.	Claremont, Calif.
Leemhuis, A. J.	Minneapolis
Leggett, E. A.	Ah-Gwah-Ching
Leibold, H. H.	Parkers Prairie
Leick, R. M.	Saint Paul
Leitch, Archibald	Saint Paul
Leitschuh, L. F.	Winsted
Leland, H. R.	Minneapolis
† Lemon, W. S.	Clifton Forge, Va.
Lenander, M. E. L.	Saint Peter
Lenarz, A. J.	Browerville
Lende, Norman	Faribault
Lengby, F. A.	Minneapolis
Lenz, J. R.	Morton
Lenz, Otto A.	Minneapolis
Leonard, L. J.	Minneapolis
Leonard, Saml.	Minneapolis
† Leopard, B. A.	Brownsville, Tex.
Lepak, F. J.	Duluth
Lepak, J. A.	Saint Paul
† Lerche, William	Cable, Wis.
Lerner, A. R.	Minneapolis
Lester, M. J., Jr.	Truman
Leven, N. L.	Saint Paul
Leverenz, C. W.	Saint Paul
Levin, B. G.	Saint Paul
Levitt, G. X.	Saint Paul
Lewis, A. J.	Henning
† Lewis, B. L.	Rochester
Lewis, C. W.	Henning
† Lewis, C. B.	Saint Cloud
Lewis, F. J.	Minneapolis
‡ Lewis, J. S., Jr.	Minneapolis
Lexa, F. J.	Lonsdale
Libert, J. N.	Saint Cloud
Lick, C. L.	Saint Paul
Lick, L. C.	Rochester
Lick, Wm. J., Jr.	Saint Paul
Lieberman, N. S.	Saint Paul
† Liedloff, A. G.	Mankato
Lien, R. J.	Saint Paul
Liffrig, W. W.	Red Wing
Lightborn, E. L.	Saint Paul
Lilleberg, N. J.	Saint Paul
Lillehei, E. J.	Robbinsdale
Lillie, H. I.	Rochester
Lima, L. R.	Montevideo
‡ Lind, C. J., Jr.	Ft. Sam Houston, Tex.
* Lind, C. J.	Minneapolis
Lindahl, M. J.	Sherburn
Lindberg, A. L.	Wheaton
Lindberg, A. C.	Minneapolis
Lindberg, V. L.	Minneapolis
Lindberg, W. R.	Minneapolis
Lindblom, A. E.	No. Mankato
† Linde, Herman	Cyrus
Lindell, Robert	Saint Paul
Lindeman, R. J.	Paynesville
Lindgren, R. C.	Minneapolis
Lindquist, J. P.	Minneapolis
Lindquist, R. H.	Minneapolis
Linner, Gunnar	Minneapolis
Linner, H. P.	Minneapolis
† Linner, J. H.	Minneapolis
Linner, P. W.	Minneapolis
Lippman, E. S.	Minneapolis
Lippman, H. S.	Minneapolis
Lippmann, E. W.	Hutchinson
Lipschultz, Oscar	Minneapolis
Lipscomb, P. R.	Rochester
‡ Liss, H. R.	San Francisco
Litchfield, John T.	Minneapolis
Litin, E. M.	Rochester
Litman, A. B.	Minneapolis
Litman, S. N.	Duluth
Livermore, G. R.	Memphis, Tenn.
Lober, P. H.	Minneapolis
Lofsness, S. V.	Oak Terrace
† Logan, A. H.	Rochester
Logan, G. B.	Rochester
Logan, J. O.	Wadena
Logefeil, R. C.	Minneapolis
Lohmann, J. G.	Pipestone
Loken, S. M.	Saint Paul
Loken, Theodore	Ada
Lommen, P. A.	Austin
Longfellow, H. W.	Brainerd
Longley, J. R.	Rochester
Longo, V. J.	Rochester
Loomis, E. A.	Minneapolis
Loomis, G. L.	Winona
Lorentzen, E. S.	Detroit Lakes
‡ Lorton, W. L.	Anoka
Lott, F. H.	Minneapolis
Love, F. A.	Carlos
Love, J. G.	Rochester
Lovett, Beatrice R.	Oak Terrace
Lovshin, W. C.	Eveleth
Lowe, E. R.	South Saint Paul
Lowe, T. A.	South Saint Paul
Lowry, Elizabeth C.	Minneapolis
Lowry, Thomas	Minneapolis
Lucas, J. E.	Saint Paul
Luck, Hilda	Mankato
Luckemeyer, C. J.	Saint Cloud
Lueck, W. W.	Minneapolis
Lufkin, N. H.	Minneapolis
Lund, C. J. T.	Fergus Falls
Lund, James	Thief River Falls
Lund, W. L.	Staples
Lundberg, Ruth I.	Minneapolis
Lundblad, R. M.	Clara City
Lundblad, R. A.	Minneapolis
Lundblad, S. W.	Minneapolis
Lundell, C. L.	Granite Falls
Lundgren, A. C.	Minneapolis
Lundholm, A. M.	Saint Paul
Lundquist, C. W.	Owatonna
Lundquist, E. F.	Minneapolis
Lundquist, V. J. P.	Minneapolis
Lundsten, L. C.	Bemidji
Lundy, J. S.	Rochester
† Luth, D. V.	Duluth
Lynch, F. W.	Saint Paul
† Lynch, M. J.	Minneapolis
Lynde, O. G.	Los Gatos, Calif.
Lyons, Henry R.	Rochester
Lysne, Henry	Minneapolis
Lysne, Myron	Minneapolis

MacCarthy, J. D.	Minneapolis
† MacCarty, C. S.	Rochester
*†MacDonald, A. E.	Minneapolis
MacDonald, Arthur W.	Minneapolis
MacDonald, D. A.	Minneapolis
MacFarlane, E. B.	Rochester
MacFarlane, P. H.	Chisholm
Mach, F. B.	Minneapolis
Mach, R. F.	Rush City
MacKenzie, D. A.	Rochester
MacKinnon, D. C.	Minneapolis
MacKinnon, H. N.	Rochester
Macklin, W. E., Jr.	Willmar
Mackoff, S. M.	Saint Paul
† MacRae, G. C.	Duluth
MacSween, G. B.	Duluth
Madden, J. F.	Saint Paul
Madison, M. S.	Rochester
Madland, R. S.	Saint Paul
Maeder, E. C.	Minneapolis
Maertz, R. W.	Faribault
Maertz, W. F.	Saint Paul
Magath, T. B.	Rochester
Magney, F. H.	Duluth
Magnuson, A. E.	Wheaton
Magnuson, R. C.	Cambridge
Magraw, R. M.	Saint Paul
Mahle, D. G.	Plainview
Mahowald, Aloys	Albany
Maitland, E. T.	Jackson
Maland, C. O.	Minneapolis
Malerich, J. A.	West Saint Paul
Malmstrom, J. A.	Virginia
† Maloney, W. F.	Minneapolis

	Mandeville, J. W.	Rochester
	Manger, W. M.	Rochester
	Mankey J. C.	Minneapolis
‡	Mankin, H. W.	Rochester
†	Mann, F. C.	Rochester
	Mann, F. D.	Rochester
	Mann, R. H.	Rochester
	Manning, Phil R.	Rochester
†	Manson, F. M.	Worthington
	March, K. A.	Cambridge
†	Marcley, W. J.	Minneapolis
	Marking, G. H.	Minneapolis
	Markle, G. B. IV	Rochester
	Marks, R. W.	Saint Paul
	Marshall, C. M.	Crosby
	Martens, T. G.	Rochester
	Martin, A. C.	Luverne
	Martin, D. A.	Wabasha
	Martin, D. L.	Saint Paul
‡	Martin, G. R.	Minneapolis
	Martin, G. M.	Rochester
	Martin, T. P.	Arlington
	Martin, W. C.	Duluth
	Martin, W. J.	Rochester
	Martineau, J. L.	Saint Paul
	Martinson, C. J.	Wayzata
	Martinson, E. J.	Wayzata
†	Masson, J. C.	Rochester
	Masson, J. K.	Rochester
†	Matchan, G. R.	Saint Paul
	Mathieson, D. R.	Rochester
	Mattill, P. M.	Oak Terrace
	Mattison, P. A.	Winona
	Mattson, A. D.	Saint James
	Mattson, H. A. N.	Minneapolis
	Maxeiner, S. R.	Minneapolis
	Maxeiner, S. R., Jr.	Rochester
	Maxwell, J. B.	Rochester
	Mayne, J. G.	Rochester
	Mayne, R. M.	Nopeming
	Mayo, C. W.	Rochester
	McBean, J B.	Rochester
	McBurney, R. P.	Nopeming
	McCabe, J. S.	Saint Paul
	McCain, D. L.	Saint Paul
	McCaffrey, F. J.	Minneapolis
	McCann, D. F.	Bemidji
	McCann, E. J.	Minneapolis
	McCannel, M. A.	Minneapolis
	McCarran, S. P.	Rochester
	McCarten, F. M.	Stillwater
	McCarthy, A. M.	Willmar
	McCarthy, Donald	Saint Paul
	McCarthy, J. J.	Saint Paul
	McCarthy, W. R.	Saint Paul
	McCartney, J. S.	Minneapolis
†	McCarty, P. D.	Ely
	McClanahan, J. H.	White Bear Lake
	McClanahan, T. S.	White Bear Lake
	McCloud, C. N., Jr.	Saint Paul
	McConahey, W. M., Jr.	Rochester
	McCormick, D. P.	Minneapolis
†	McCoy, Mary K.	Duluth
‡	McCrimmon, H. P.	Cleveland, Ohio
†	McDaniel, Orianna	Minneapolis
†	McDonald, A. L.	Duluth
	McDonald, J. R.	Rochester
	McDonald, O. G.	Duluth
	McDowell, J. P.	Saint Cloud
	McEnaney, C. T.	Owatonna
	McEwan, Alexander	Saint Paul
	McFarland, A. H.	Minneapolis
	McFarlane, J. A.	Rochester
	McGandy, R. F.	Minneapolis
	McGeary, G. E.	Minneapolis
‡	McGeary, M. D.	Oceanside, Calif.
	McGroaty, B. J.	Saint Paul
	McGroaty, J. J.	Easton
	McHaffie, O. L.	Duluth
	McInerny, M. W.	Minneapolis
	McIntire, H. M.	Waseca
	McIntire, S. F.	Rochester
	McIntyre, J. A.	Owatonna
	McKaig, A. M.	Red Lake Falls
	McKaig, C. B.	Pine Island
	McKelvey, J. L.	Minneapolis
	McKenna, J. K.	Austin
	McKenna, M. J.	Grand Rapids
	McKenzie, C. H.	Minneapolis
	McKenzie, Eva E.	Saint Paul
	McKinley, C. A.	Minneapolis
	McKinney, F. S.	Minneapolis
	McLane, W. O.	Brainerd
†	McLaren, J. M.	Minneapolis
	McLaughlin, B. H.	Minneapolis
	McLaughlin, E. M.	Winona
‡	McLeod, J. J.	Japan
	McLeod, J. L.	Grand Rapids
	McMahon, M. J.	Green Isle
	McManus, W. F.	Princeton
	McMorris, R. O.	Rochester
	McMurtrie, W. B.	Minneapolis
	McNeil, J. J.	Minneapolis
	McNeil, J. I.	Rochester
	McNutt, J. R.	Duluth
	McPheeters, H. O.	Minneapolis
†	McQuarrie, Irvine	Minneapolis
	McWhorter, H. E.	Rochester
	Mead, C. H.	Duluth
	Meade, J. R.	Saint Paul
	Mears, B. J.	Saint Paul
	Mears, R. F.	Northfield
	Medelman, J. P.	Saint Paul
	Meinert, A. E.	Winona
	Melancon, J. F.	Saint Paul
	Melby, Benedik,	Blooming Prairie
†	Mellby, O. F.	Thief River Falls
	Meller, R. L.	Minneapolis
	Melzer, G. R.	Lyle
	Menges, Charles G. H.	Rochester
	Menold, W. F.	Saint Paul
	Mercil, W. F.	Crookston
	Merkert, C. E.	Minneapolis
	Merkert, G. L.	Minneapolis
	Merner, T. B.	Faribault
(	Merrick, C. T.	Saint Paul
	Merrick, R. L.	Saint Paul
†	Merrill, Elisabeth	Minneapolis
	Merrill, R. W.	Morris
	Merriman, L. L.	Duluth
	Merritt, W. A.	Rochester
	Metcalf, N. B.	Onamia
	Meyer, A. A.	Melrose
	Meyer, A. J.	Minneapolis
	Meyer, E. L.	Minneapolis
	Meyer, F. C.	Kenyon
‡	Meyer, J. O.	Grand Rapids
	Meyer, P. F.	Faribault
†	Meyerding, E. A.	Saint Paul
	Michael, Isaac E.	Rochester
	Michael, J. C.	Minneapolis
	Michel, H. H.	Minneapolis
	Michels, R. P.	Willmar
	Michelson, H. E.	Minneapolis
	Michienzi, L. J.	Saint Paul
†	Mickelsen, Emma F.	Minneapolis
	Mickelson, J. C.	Mankato
	Midthune, A. S.	Lake Park
	Milhaupt, E. N.	Saint Cloud
	Miller, A. L.	Minneapolis
	Miller, E. W.	Anoka
	Miller, Harold E.	Minneapolis
	Miller, Hugo E.	Minneapolis
	Miller, J. C.	Minneapolis
‡	Miller, J. M.	Indianapolis, Ind.
	Miller, R. D.	Rochester
	Miller, R. H.	Rochester
	Miller, Samuel	Albert Lea
†	Miller, V. I.	Mankato
	Miller, W. R.	Red Wing
	Miller, W. T.	West Saint Paul
	Miller, Z. R.	Saint Paul
	Millett, D. K.	Minneapolis
	Mills, J. L.	Winnebago
	Mills, S. D.	Rochester
	Milnar, F. J.	Saint Paul
	Milton, J. S.	Minneapolis
	Minge, R. K.	Worthington
	Minno, Alexander M.	Rochester
	Minsky, A. A.	Minneapolis
	Minty, E. W.	Duluth
	Misbach, W. D.	Fairmont
	Mitby, I. L.	Minneapolis
	Mitchell, B. D.	Minneapolis
	Mitchell, E. C.	Minneapolis
	Mitchell, M. T.	Minneapolis
	Mixer, H. W.	Minneapolis
	Moberg, C. W.	Detroit Lakes
	Moe, A. E.	Marysville, Calif.
	Moe, J. H.	Minneapolis
	Moe, R. J.	Duluth
	Moe, Thos.	Moose Lake
	Moehn, John T.	Minneapolis
	Moehring, H. G.	Duluth
	Moen, J. K., Jr.	Minneapolis
	Moersch, F. P.	Rochester
	Moersch, H. J.	Rochester
	Moga, J. A.	Saint Paul
	Molander, H. A.	Saint Paul
	Mollers, T. P.	Soudan
†	Monahan, Elizabeth	Minneapolis
	Monroe, P. B.	Cloquet
	Monserud, N. O.	Cloquet
	Monson, E. M.	Minneapolis
	Monson, L. J.	Canby
	Monsour, K. J.	Rochester
	Montgomery, Hamilton	Rochester
	Moore, I. H.	Minneapolis
	Moorhead, Marie	Minneapolis
	Moos, D. J.	Minneapolis
†	Moquin, Marie A.	Saint Paul
†	Morehead, D. E.	Owatonna
†	Moren, Edward	Minneapolis
†	Moren, J. A.	Saint Paul
	Morgan, H. O.	Amboy
	Moriarty, Berenice	Saint Paul
	Moriarty, Cecile R.	Saint Paul
	Mork, A. H.	Anoka
	Mork, F. E.	Anoka
	Morlock, C. G.	Rochester
	Morris, K. L.	Rochester
	Morrison, C. J.	Minneapolis
	Morse, M. P.	LeRoy
*	Morse, R. W.	Minneapolis
	Morsman, L. W.	Hibbing
	Mortensen, N. G.	Minneapolis
‡	Morton, G. H.	Scott Air Base, Ill.
	Mosby, M. E.	Long Prairie
	Moses, R. R.	Kenyon
	Mouritsen, G. J.	Fergus Falls
	Moyer, J. B.	Duluth
	Mueller, S. C.	Carriere, Miss.
	Muir, W. F.	Browns Valley
	Mulder, D. W.	Rochester
‡	Mulholland, W. M.	Camp Atterbury, Ind.
	Muller, A. E.	North Saint Paul
	Muller, R. T.	Saint Paul
	Mulligan, A. M.	Brainerd
	Mundahl, H. P.	Saint Paul
	Munson, M. S.	Barnum
	Murphy, E. P.	Minneapolis
	Murphy, J. T.	Saint Paul
	Murphy, J. E.	Marshall
	Murray, R. A.	Hibbing
	Musachio, N. F.	Foley
	Mussey, Mary E.	Rochester
†	Mussey, R. D.	Rochester
	Mussey, W. C.	Rochester
	Musty, N. J.	Minneapolis
‡	Myers, C. III	San Antonio, Tex.
	Myers, J. A.	Minneapolis
	Myers, T. T.	Rochester
	Myers, W. P. L.	Rochester
	Myhre, J. A.	Minneapolis
	Myre, C. R.	Paynesville
‡	Myre, T. T.	Paducah, Ky.

	Naegeli, A. E.	Newport Beach, Calif.
	Naegeli, Frank	Fergus Falls
	Nagel, H. D.	Waconia
	Nash, L. A.	Saint Paul
	Naslund, A. W.	Minneapolis
	Nauth, B. S.	Bagley
	Navratil, D. R.	Montgomery
‡	Neal, J. M.	Minneapolis
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	Nealy, R. P.	Minneapolis
	Neary, R. P.	Minneapolis
	Neel, H. B.	Albert Lea
	Neff, W. S.	Virginia
	Nehring, J. P.	Preston
‡	Neils, V. E.	Sauk Rapids
	Nelson, Bernette G.	Minneapolis
	Nelson, Bernice A.	Minneapolis
	Nelson, C. A.	Worthington
	Nelson, C. B.	Minneapolis
	Nelson, C. E. J.	Albert Lea
	Nelson, E. N.	Minneapolis
	Nelson, E. J.	Owatonna
	Nelson, G. E.	Fairfax
	Nelson, Harvey	Minneapolis
†	Nelson, H. E.	Crookston
*†	Nelson, H. S.	Los Angeles, Calif.
	Nelson, K. L.	Warroad
	Nelson, L. S.	Minneapolis
†	Nelson, L. A.	Saint Paul
	Nelson, M. C.	Minneapolis
	Nelson, M. S.	Granite Falls
	Nelson, N. P.	Minneapolis
	Nelson, O. L. N.	Minneapolis
	Nelson, R. L.	Duluth
	Nelson, W. I.	Minneapolis
	Nesbitt, Samuel	Minneapolis
	Nesheim, M. O.	Emmons
	Nessa, C. B.	Saint Cloud
	Nesset, L. B.	Minneapolis
	Nesset, W. D.	Minneapolis
	Neumaier, Arthur	Glencoe
	Neuman, H. W.	Rochester
	Neumann, C. A.	Lewiston
	Nice, Charles M.	Minneapolis
	Nicholson, M. A.	Duluth
	Nickerson, J. R.	Heron Lake
	Nickerson, N. D.	Thief River Falls
	Nielson, A. M.	Northfield
	Nietfeld, A. B.	Warren
	Nilson, H. J.	North Mankato
	Nimlos, K. O.	Saint Paul
†	Nimlos, Lenore O.	Saint Paul
	Ninneman, N. N.	Waconia
	Nixon, J. B.	Crosby
	Noble, J. B.	Crosby
	Noble, J. L.	Saint Paul
	Noonan, W. J.	Minneapolis
	Noran, A. S. N.	Minneapolis

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Norberg, C. E. ....Cloquet
Nord, R. E. ....Minneapolis
Nordin, G. T. ....Minneapolis
Nordland, Martin, Jr. ...Minneapolis
Nordland, Martin ....Minneapolis
Nordlund, Mildred E. ...White Earth
Nordman, W. F. ....Mora
Norman, J. F. ....Crookston
Normann, S. T., Jr. ....Waseca
Norum, H. A. ....Minneapolis
Norval, M. A. ....Minneapolis
† Noth, H. W. ....Minneapolis
† Novak, E. E. ....New Prague
Nuessle, W. G. ....Springfield
Nuetzman, A. W. ....Faribault
Nutting, R. E. ....Duluth
Nydahl, M. J. ....Minneapolis
Nye, Katherine A. ....Saint Paul
Nye, Lillian L. ....Saint Paul
Nygren, W. T. ....Braham
Nylander, E. G. ....Minneapolis
† Nystrom, Ruth G.
Malibu Beach, Calif.
Nywall, D. D. ....Slayton

O'Brien, J. C. ....Saint Paul
O'Brien, L. T. ....Breckenridge
O'Cain, R. K. ....Rochester
O'Connor, D. C. ....Eden Valley
O'Connor, L. J. ....Saint Paul
O'Donnell, D. M. ....Ortonville
O'Donnell, J. E. ....Minneapolis
O'Hanlon, J. A. ....Minneapolis
O'Kane, T. W. ....Saint Paul
O'Keefe, J. P. ....Saint Cloud
O'Leary, J. H. ....Thief River Falls
O'Leary, P. A. ....Rochester
O'Malley, Valentine ......Saint Paul
O'Neill, J. C. ....Duluth
O'Reilley, B. E. ....Saint Paul
O'Shaughnessy, E. J. ......Rochester
† Oberg, C. M. ....Minneapolis
Ochsner, C. G. ....Wabasha
Ockuly, Orville ....Saint Paul
Odel, H. M. ....Rochester
Odland, M. E. ....Detroit Lakes
Oeljen, S. C. G. ....Waseca
Ogburn, Paul L. ....Rochester
Ogden, Warner ....Saint Paul
Ohage, Justus ....Saint Paul
Olds, G. H. ....New Richland
Olive, J. T., Jr. ....Rochester
Oliver, I. L. ....Graceville
Oliver, James ....Moorhead
Olmanson, E. G. ....Saint Peter
Olsen, A. M. ....Rochester
Olsen, E. G. ....Minneapolis
Olsen, R. L. ....Saint Paul
Olson, Albert E. ....Duluth
Olson, Albert J. ....Owatonna
Olson, Alton C. ....Minneapolis
Olson, Archibald O. ....Duluth
† Olson, Burton G. ....Minneapolis
Olson, Carlton K. ....Minneapolis
Olson, Charles A. ....Saint Paul
Olson, Chester J. ....Belle Plaine
Olson, Duane O. C. ....Gaylord
Olson, Ernest A. ....Pine Island
Olson, Grant E. ......West Concord
* Olson, John W. ....Minneapolis
Olson, Lillian A. ....Ah-Gwah-Ching
† Olson, Olof A. ....Minneapolis
Onsgard, L. K. ....Houston
Openshaw, C. R. ....Rochester
Oppegaard, C. L. ....Crookston
Oppegaard, M. O. ....Crookston
Oppen, E. G. ....Minneapolis
Oppen, M. G. ....New Ulm
Opsahl, L. J. ....Willmar
Opstad, E. T. ....Oak Terrace
Orr, B. A. ....Faribault
‡ Orwoll, H. S. ....Japan
Osborn, D. O. ....Owatonna
Osborn, J. E. ....Rochester
Ostergaard, Erling ....Evansville
Ostergren, E. W. ....Saint Paul
Ostling, B. C. ....Kerkhoven
Otto, H. C. ....Frazee
Ouellette, A. J. ....Saint Paul
Ourada, A. L. ....Ceylon
Owen, H. W. ....Rochester
Owens, F. M., Jr. ....Saint Paul
Owens, W. A. ....Montevideo

‡ Paciotti, V. J. ....San Diego, Calif.
Page, R. L. ....Saint Charles
Palen, B. J. ....Minneapolis
Palmer, C. F. ....Albert Lea
Palmer, H. A. ....Blackduck
*† Palmer, W. L. ....Albert Lea
† Palmerton, E. S. ....Minneapolis
Pankratz, P. J. .....Mountain Lake
Papermaster, Ralph ....Two Harbors
Papermaster, T. C. .....Minneapolis
Parker, C. W. ....Wadena
Parker, H. L. ....Rochester
Parker, O. W. ....Duluth
Parker, R. L. ....Rochester
Parker, W. E. ....Sebeka
Parkhill, Edith M. ....Rochester
Parson, E. I. ....Duluth
Parson, E. L. B. ....Elbow Lake
Parson, L. R. ....Elbow Lake
Parsons, R. L. ....Monterey
Parsons, W. B., Jr. ......Rochester
Pasek, A. W. ....Cloquet
‡ Pasek, E. A. ....Portland, Ore.
Patch, O. B. ....Duluth
Patrick, Robert ....Rochester
Patterson, H. D. ....Slayton
Patterson, W. L. ......Fergus Falls
Paulley, H. F. ....Rochester
Paulson, Elmer ....Worthington
Paulson, J. A. ....Rochester
Paulson, T. S. ....Fergus Falls
Paynter, C. R. ....Rochester
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Pearson, B. F. ....Shakopee
Pearson, F. R. ....Saint Paul
Pearson, M. M. ....Saint Paul
Pearson, L. O. ....Erskine
† Pearson, R. T. ....Shakopee
Pease, Gertrude L. ....Rochester
Pedersen, A. H. ....Saint Paul
Pedersen, R. C. ....Duluth
Peluso, C. R. ....Minneapolis
Pemberton, A. H. ....Rochester
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Penk, E. L. ....Springfield
Penn, G. E. ....Mankato
Pennie, D. F. V. ....Duluth
Peppard, T. A. ....Minneapolis
Perlman, E. C. ....Minneapolis
Perry, Harold ....Rochester
Person, J. P. ....Albert Lea
Pertl, A. L. ....Canby
Pertman, H. L. ....Minneapolis
Peters, G. A. ....Rochester
Petersen, D. H. ....Northfield
Petersen, G. L. ....Minneapolis
† Petersen, J. R. ....Minneapolis
Petersen, M. C. ....Rochester
Petersen, P. C. ....Minneapolis
Petersen, R. T. ....Saint Cloud
Petersen, W. E. ....Minneapolis
Peterson, D. B. ....Saint Paul
Peterson, D. H. ....Saint Paul
Peterson, E. N. ....Virginia
Peterson, H. O. ....Saint Paul
Peterson, H. W. ....Minneapolis
Peterson, J. L. E. ....Saint Paul
Peterson, J. H. ....Duluth
Peterson, Kenneth A. ......Marshall
Peterson, K. H. ....Hutchinson
Peterson, L. J. ....Reno, Nevada
Peterson, N. P. ....Minneapolis
Peterson, O. H. ....Minneapolis
Peterson, O. H., Jr. ....Minneapolis
Peterson, P. E. ....Minneapolis
Peterson, R. A. ....Vesta
Peterson, Stanley C. ....Austin
Peterson, W. C. ....Minneapolis
Peterson, W. E. ....Willmar
Peterson, W. H. ......Spring Valley
Peterson, W. Henry ....Minneapolis
Petit, J. V. ....Minneapolis
Petit, L. J. ....Minneapolis
Petraborg, H. T. ....Aitkin
Pewters, T. T. ....Minneapolis
Peyton, W. T. ....Minneapolis
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Phares, O. C. ....Saint Cloud
Phares, W. S. ....Rochester
Phelps, K. A. ....Minneapolis
Philip, D. R. ....Windom
Pierce, C. H. ....Wadena
Pierce, J. R. ....Virginia
Pierce, R. B. ....Renville
Pierson, R. F. ....Slayton
† Piper, M. C. ......LaCanada, Calif.
Piper, W. A. ....Mountain Lake
Plasha, M. K. ....Glenwood
Plass, H. F. R. ....Minneapolis
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Pleissner, Karl W. ......Minneapolis
Plimpton, N. C., Jr. .....Minneapolis
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Plotke, H. L. ....Saint Paul
Pogue, R. E. ....Watertown
Pohl, D. E. ....Crookston
Pohl, J. F. M. ....Minneapolis
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Pollock, D. K. ....Minneapolis
Polski, P. G. ......South Saint Paul
Polzak, J. A. ....Minneapolis
Ponterio, J. E. ....Shakopee
Pool, T. L. ....Rochester
Poppe, F. H. ....Minneapolis
Porter, O. M. ....Willmar
Post, D. B. ....Rochester
Potek, David .....International Falls
Potter, R. B. ....Minneapolis
Potthoff, C. J. ....Washington, D. C.
Power, J. E. ....Duluth
Powers, W. W. ....Rochester
Prangen, A. DeH. ....Rochester
Pratt, F. J., Jr. ....Minneapolis
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Pratt, G. F. ....Rochester
Pratt, J. H., Jr. ....Rochester
Preine, Irping A. ....Minneapolis
† Preisinger, J. W. ....Renville
†* Prendergast, H. J. ....Saint Paul
Preston, P. J. ....Minneapolis
Price, Richard D. ....Rochester
Prickman, L. E. ....Rochester
Priest, R. E. ....Minneapolis
Priestley, J. T. ....Rochester
Prim, J. A. ....Minneapolis
Prins, L. R. ....Albert Lea
Proeschel, R. K. ....Willmar
Proffitt, W. E. ....Minneapolis
Proshek, C. E. ....Minneapolis
Pruitt, R. D. ....Rochester
Pugh, D. G. ....Rochester
Pumala, E. E. ....Warren
Purcell, Howard M. ....Rochester
Purves, G. H. ....Hendricks
Puumala, R. H. ....Cloquet
Pyle, Marjorie M. .....Cannon Falls

Quanstrom, V. E. ....Brainerd
Quattlebaum, Frank ......Saint Paul
Quello, R. O. B. ....Minneapolis
Quer, E. A. ....Rochester
† Quigley, W. P. ....Brooklyn, N. Y.
† Quist, H. W. ....Minneapolis
Quist, H. W., Jr. ....Minneapolis

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Raetz, S. J. ....Maple Lake
Ralph, J. R. ....Saint Paul
Ralston, D. E. ....Rochester
† Ramsey, W. R. ....Saint Paul
Randall, A. M. ....Ashby
Randall, L. M. ....Rochester
Ransom, H. R. ....Osseo
† Ransom, M. L. ....Hancock
Rasmussen, R. C. ....Saint Paul
Rasmussen, W. C. ....Rochester
Ravits, H. G. ....Saint Paul
Rea, C. E. ....Saint Paul
Reader, D. R. ....Minneapolis
Reed, Paul ....Virginia
Reese, G. A. ....Rochester
Reff, A. R. ....Crookston
Regnier, E. A. ....Minneapolis
Reid, J. W. ....Saint Paul
Reid, L. M. ....Excelsior
Reif, H. A. ....Minneapolis
Reif, H. J. ....Saint Cloud
Reiley, R. E. ....Minneapolis
† Reineke, G. F. ....New Ulm
Reitemeier, R. J. ....Rochester
Reiter, R. A. ....Rochester
Reitmann, J. H. ....Sandstone
ReMine, P. G. ....Rochester
ReMine, W. H., Jr. ......Rochester
Remsberg, R. R. ....Tracy
† Replogle, W. H. ..Los Angeles, Calif.
Resch, J. A. ....Minneapolis
‡ Retter, Richard....Fort Custer, Mich.
Rice, C. O. ....Minneapolis
Rice, Frank B. ....Minneapolis
Rice, Fred A. ....Minneapolis
Rice, H. G. ....Moorhead
Rice, Roberta G. ..Grand Island, Neb.
Richards, E. T. F. ....Saint Paul
Richards, W. B. ....Saint Cloud
Richardson, E. J., Jr. ....Saint Paul
* Richardson, H. E. ....Saint Paul
Richardson, R. J. ....Saint Paul
Richdorf, L. F. ....Minneapolis
Richter, E. H. ....Fergus Falls
Rick, P. F. W. ....Saint Paul
† Ridgway, A. M. ....Annandale
Ridley, R. W. ....Rochester
Rieke, W. W. ....Wayzata
Rigler, L. G. ....Minneapolis
‡ Rigler, R. G. ....Portsmouth, Va.
Ringle, O. F. ....Walker

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	Riordan, Elsie M.	Minneapolis
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	Risser, A. F.	Stewartville
	Ritchie, W. P.	Saint Paul
	Ritt, A. E.	Saint Paul
	Rizer, D. K.	Minneapolis
	Rizer, R. I.	Minneapolis
	Robb, E. F.	Minneapolis
†	Robbins, C. P.	Winona
	Robbins, O. F.	Minneapolis
	Roberts, L. J.	Minneapolis
	Roberts, O. W.	Owatonna
	Roberts, S. W.	Minneapolis
†	Roberts, W. B.	Minneapolis
†	Robertson, J. B.	Minneapolis
	Robertson, P. A.	Austin
	Robilliard, C. M.	Faribault
	Robinett, R. W.	Worthington
	Robinson, C. O.	Saint Paul
*	Robinson, J. M.	Duluth
	Rocknem, R. E.	Minneapolis
	Rockwell, C. V.	Minneapolis
†	Rodda, F. C.	Minneapolis
	Rodgers, R. S.	Minneapolis
	Roehlke, A. B.	Elk River
	Roemer, H. J.	Winona
	Rogers, C. W.	Winona
	Rogers, S. F.	Saint Paul
†	Rogin, Norton	Saint Louis Park
	Rogne, W. G.	Spring Grove
	Roholt, C. L.	McIntosh
	Roholt, H. B.	Fosston
	Rokala, H. E.	Virginia
	Rolig, D. H.	Saint Paul
	Rollie, O. O.	Saint Paul
	Rollins, Pat	Saint Charles
	Rollins, T. G.	Elmore
	Rome, H. P.	Rochester
	Romness, J. O.	Rochester
	Romness, Kenneth	Minneapolis
†	Rood, D. C.	Santa Barbara, Calif.
	Rooke, E. D.	Rochester
	Rosander, Phyllis	Minneapolis
	Rose, J. T.	Lakefield
	Rosenbaum, D. L.	Minneapolis
	Rosendahl, F. G.	Minneapolis
	Rosenfield, A. B.	Minneapolis
	Rosenholtz, B. I.	Saint Paul
	Rosenow, J. H.	Minneapolis
	Rosenthal, F. H.	Austin
	Rosenthal, Robert	Saint Paul
	Rosenwald, R. M.	Minneapolis
	Rosin, J. D.	Rochester
	Ross, A. J.	Minneapolis
	Rossberg, R. A.	Morris
	Roth, G. C.	Saint Paul
	Rothman, Morris	Minneapolis
	Rothschild, H. J.	Saint Paul
	Rotnem, O. M.	Harmony
	Roust, H. A.	Montevideo
	Routley, E. F.	Rochester
	Rovelstad, R. A.	Rochester
	Rowe, O. W.	Duluth
	Rowe, W. H.	Fairmont
	Rowles, E. K.	Coleraine
	Roy, P. C.	Saint Paul
	Rozycki, Anthony	Pine River
	Rucker, C. W.	Rochester
	Rucker, W. H.	Minneapolis
	Rud, N. E.	Minneapolis
	Rudie, C. N.	Saint Peter
	Rudie, P. S.	Duluth
	Ruggles, G. M.	Forest Lake
†	Ruhberg, G. M.	Tarzana, Calif.
	Rukavina, J. G.	Saint Paul
	Rumpf, C. W.	Faribault
	Runquist, J. M.	Duluth
	Rushton, J. G.	Rochester
	Russ, H. H.	Blue Earth
	Russeth, A. N.	Minneapolis
	Rustad, Ian	Rochester
	Rusten, E. M.	Minneapolis
	Rutherford, W. C.	Brainerd
	Rutledge, L. H.	Detroit Lakes
	Ryan, J. D.	San Diego, Calif.
	Ryan, J. J.	Saint Paul
	Ryan, J. M.	Saint Paul
	Ryan, W. J.	Duluth
	Rydburg, W. C.	Minneapolis
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	Rynda, E. R.	New Prague
	Rynearson, E. H.	Rochester
	Rysgaard, G. M.	Northfield
	St. Cyr, H. M., Jr.	Minneapolis
	St. Cyr, K. J.	Robbinsdale
	Sach-Rowitz, Alvan	Moose Lake
	Sadler, W. P., Jr.	Minneapolis
	Saffert, C. A.	New Ulm
	Sahr, W. G. C.	Hutchinson
	Saidy, J. T.	Rochester
	Salassa, R. M.	Rochester
	Saliterman, B. I.	Minneapolis
	Salk, R. J.	Herman
	Salter, R. A.	Virginia
	Samuelson, L. G.	Mankato
	Samuelson, Samuel	Minneapolis
	Sandeen, R. M.	Buffalo
	Sandell, S. T.	Nopeming
	Sanderson, A. G.	Anoka
	Sandt, K. E.	Minneapolis
	Sandven, N. O.	Paynesville
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	Sanford, J. A.	Savage
‡	Sanford, J. B.	Battle Creek, Mich.
	Sanford, R. A.	Minneapolis
	Sarff, O. E.	Duluth
	Sargent, E. C., Jr.	Austin
	Sarnecki, M. M.	Saint Paul
	Satersmoen, Theodore	Pelican Rapids
	Sather, E. L.	Fosston
	Sather, E. R.	Alexandria
	Sather, G. A.	Fosston
	Sather, R. N.	Fosston
	Sather, R. O.	Crookston
	Satterlee, H. W.	Lewiston
†	Satterlund, V. L.	Saint Paul
	Saunders, B. H., Jr.	Rochester
†	Savage, F. J.	Saint Paul
	Sawatzky, W. A.	Minneapolis
	Sax, M. H.	Duluth
	Sax, S. G.	Duluth
	Saxman, Gertrude O.	Georgetown
	Sayre, G. P.	Rochester
‡	Sborov, A. M.	Ft. McClellan, Ala.
	Scanlon, P. W.	Rochester
	Schaaf, F. H. K.	Minneapolis
†	Schaar, Frances E.	Minneapolis
	Schade, F. L.	Worthington
	Schaefer, J. F.	Owatonna
	Schaefer, W. G.	Minneapolis
	Schamber, W. F.	Parkers Prairie
	Schatz, F. J.	Saint Cloud
‡	Scheidel, A. McK.	Crane, Ind.
	Scheifley, C. H.	Rochester
†	Scheldrup, N. H.	Minneapolis
	Schell, R. F.	Rochester
	Scherer, L. R.	Minneapolis
	Scherling, S. S.	Minneapolis
	Scherman, Q.	Rochester
	Schiele, B. C.	Minneapolis
	Schimelpfenig, G. T.	Chaska
	Schirber, M. J.	Grand Rapids
	Schlesselman, G. H.	Minneapolis
	Schmid, J. F.	Duluth
	Schmidt, G. F.	Minneapolis
	Schmidt, H. W.	Rochester
	Schmidt, H. R.	Winona
†	Schmidt, P. A.	Aurora, Ill.
	Schmidt, P. G., Jr.	Granite Falls
	Schmidt, R. F.	Alden
	Schmidt, W. R.	Minneapolis
	Schmidtke, R. L.	Saint Paul
†	Schmitt, S. C.	San Diego, Calif.
	Schmitz, A. A.	Mankato
	Schmitz, G. P.	Little Falls
	Schneider, L. E.	Duluth
	Schneider, P. J.	Adams
	Schnell, F. S.	Virginia
	Schoch, R. B. J.	Saint Paul
	Schoeneberger, P. B.	Perham
	Scholpp, O. W.	Hutchinson
	Scholz, D. A.	Rochester
	Schons, Edward	Saint Paul
	Schottler, M. E.	Minneapolis
†	Schroder, C. H.	Pottstown, Pa.
	Schroeckenstein, H. F.	Saint Paul
	Schroeder, A. J.	Minneapolis
	Schroeppel, J. E.	Winthrop
	Schulberg, V. A.	New Port Beach, Calif.
†	Schuldt, F. C.	Saint Paul
†	Schultz, J. A.	Albert Lea
	Schultz, J. H.	Minneapolis
†	Schultz, P. J.	Minneapolis
	Schulze, A. G.	Saint Paul
	Schulze, W. M.	Minneapolis
	Schumacker, J. W.	Saint Paul
	Schut, J. W.	Anoka
	Schutz, E. S.	Mountain Lake
	Schwartz, V. J.	Minneapolis
	Schweiger, T. R.	Hibbing
	Schweinfurth, J. D.	Rochester
	Schweinfurth, J. P.	Rochester
	Schwyzer, H. C.	Saint Paul
	Scott, E. E.	Saint Paul
*†	Scott, F. H.	Minneapolis
	Scott, H. G.	Minneapolis
	Scribner, B. H.	Seattle, Wash.
	Scudamore, H. H.	Rochester
	Seagle, J. B.	Rochester
*†	Seashore, Gilbert	Minneapolis
	Seery, T. M.	Austin
†	Segal, M. A.	Minneapolis
	Seham, Max	Minneapolis
	Seifert, M. H.	Excelsior
	Seifert, O. J.	New Ulm
	Seitz, S. B.	Barnesville
	Sekhon, M. S.	Saint Paul
	Seldon, T. H.	Rochester
	Seljeskog, S. R.	Minneapolis
	Sellers, G. K.	Dassel
	Selmo, J. D.	Norwood
	Semsch, R. D.	Minneapolis
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	Senn, E. W.	Owatonna
	Sether, A. F.	Ruthton
	Setzer, H. J.	Saint Paul
	Shandorf, J. F.	Minneapolis
	Shands, W. C.	Houston, Tex.
	Shannon, W. R.	Saint Paul
	Shaperman, Eva P.	Minneapolis
	Shapiro, S. K.	Minneapolis
	Sharp, D. V.	Minneapolis
	Shaw, H. A.	Minneapolis
	Shea, Andrew W.	Minneapolis
	Sheedy, C. L.	Austin
†	Shellman, J. L.	Pacific Palisades, Calif.
	Sheppard, C. G.	Hutchinson
	Sher, D. A.	Virginia
	Sher, Lewis	Minneapolis
	Sherman, A. G.	Albert Lea
	Sherman, C. H.	Bayport
	Sherman, C. L.	Luverne
	Sherman, H. T.	Cambridge
	Sherman, L. F.	Minneapolis
	Sherman, R. V.	Red Wing
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	Shick, R. M.	Rochester
‡	Shimonek, S. W.	Great Lakes, Ill.
‡	Shocket, Everett	Dayton, Ohio
	Sholl, P. R.	Rochester
	Short, Jacob	Saint Paul
	Shronts, J. F.	Minneapolis
	Sickels, E. W.	Saint Paul
	Siegel, Clarence	Saint Paul
	Siegel, J. S.	Virginia
	Siegel, S. C.	Saint Paul
	Siegmann, W. C.	Minneapolis
‡	Siekert, R. G.	Philadelphia, Pa.
	Siemon, Glenn	Bakersfield, Calif.
	Sikkema, Stella H.	Minneapolis
	Silver, J. D.	Minneapolis
	Simison, Carl	Barnesville
	Simon, T. R.	Saint Cloud
	Simons, B. H.	Chaska
	Simons, E. J.	Saint Paul
†	Simons, J. H.	Minneapolis
	Simons, L. T.	Saint Paul
	Simmons, W. H.	Rochester
	Simonson, D. B.	Minneapolis
	Simonton, K. MacL.	Rochester
	Simpson, E. D.	Minneapolis
	Sinamark, Andrew	Hibbing
	Singer, B. J.	Saint Paul
	Sinykin, M. B.	Minneapolis
	Siperstein, D. M.	Minneapolis
	Sisk, H. E.	Saint Cloud
	Sisler, C. E.	Grand Rapids
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†	Sivertsen, Andrew	Minneapolis
†	Sivertsen, Ivar	Minneapolis
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	Sjostrom, L. E.	Saint Peter
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†	Skinner, H. O.	Saint Paul
	Skjold, A. C.	Minneapolis
	Skogerboe, R. B.	Karlstad
	Slater, S. A.	Worthington
	Slocumb, C. H.	Rochester
	Smiley, J. T.	Minneapolis
	Smisek, E. A.	Saint Paul
	Smisek, F. M. E.	Minneapolis
	Smith, Adam M.	Minneapolis
	Smith, Archie M.	Minneapolis
	Smith, B. A., Jr.	Minneapolis
	Smith, C. M.	Duluth
	Smith, C. F.	Rochester
	Smith, D. V.	Blue Earth
†	Smith, Fredk. L.	Rochester
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	Smith, Graham G.	Minneapolis
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	Smith, H. R.	Minneapolis
	Smith, Leon G.	Montevideo
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	Smith, Lucian A.	Rochester
	Smith, M. P.	Rochester
†	Smith, Margaret I.	Robbinsdale
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†	Smith, Myron W.	Red Wing
*	Smith, N. M.	Minneapolis
	Smith, N. R.	Minneapolis

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Smith, R. A. ....Rochester
Smith, R. E. ....Saint Paul
Smith, T. S. ....Minneapolis
Smith, V. D. E. ....Saint Paul
Smith, W. R. ....Grand Marais
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Stanley, C. R. ....Worthington
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Von Drasek J. ....Mankato

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Walsh, F. M. ....Minneapolis
Walsh, W. T. ....Minneapolis
Walter, C. Wm. ....Saint Paul
Walter, F. H. ....International Falls
Walters, Waltman ....Rochester
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Warren, C. A. ....Saint Paul
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Wasson, L. F. ....Alexandria
Watkins, C. H. ....Rochester
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Watson, A. M. ....Royalton
Watson, C. G. ....Minneapolis
Watson, C. J. ....Minneapolis
Watson, J. R. ....Rochester
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Watson, Percy T. ....Minneapolis
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Watz, C. E. ....Saint Paul
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Vancouver, B. C., Canada
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Webb, James H. ....Rochester
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Webber, R. J.	Saint Louis Park
Weber, W. E.	Rochester
Weed, L. A.	Rochester
Wehr, M. B.	Long Island, N. Y.
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Weisberg, R. J.	Minneapolis
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Wellborn, W. H.	Rochester
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Wellner, T. O.	Rochester
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Wells, W. B.	Jackson
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Wetherby. M.	Minneapolis
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Wheeler, R. W.	Minneapolis
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White, S. Marx	Minneapolis
White, W. D.	Minneapolis
Whitesell, L. A.	Minneapolis
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Whitson, S. A.	Albert Lea
Whittemore, D. D.	Bemidji
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Williams, A. B.	Saint Paul
Williams, B. F. P.	Duluth
Williams, C. K.	Saint Paul
Williams, H. O.	Lake Crystal
Williams, J. A.	Saint Paul
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Williams, M. R.	Cannon Falls
Williams, R. R.	Rochester
† Williams, R. V.	Rushford
† Williams, Robert	Carthage, Ill.
Williamson, H. A.	Heron Lake
Willius, F. A.	Rochester
Wilmot, C. A.	Litchfield
Wilmot, H. E.	Litchfield
Wilson, C. E.	Blue Earth
Wilson, F. C.	Austin
Wilson, J. A.	Saint Paul
Wilson, J. D.	Carmel by the Sea, Calif.
Wilson, J. V.	Saint Paul
Wilson, R. B.	Rochester
Wilson, R. H.	Winona
Wilson, T. W.	Rochester
Wilson, V. O.	Rochester
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Wineland, R. E.	Rochester
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Wright, Wm. S.	Minneapolis
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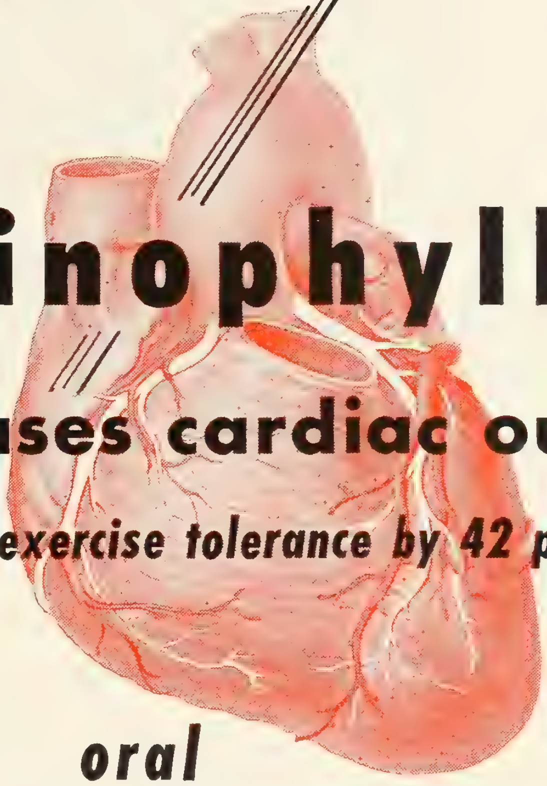

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1. Kissin, M.; Stein, J. J., and Adelman, R. J.: Angiology 2:217 (June) 1951.
2. Rickles, J. A. J. Florida M.A. 38:263 (Oct.) 1951.

*Contains at least 80% of anhydrous theophylline.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

✦ Reports and Announcements ✦

NAPT COMMONWEALTH AND EMPIRE HEALTH AND TUBERCULOSIS CONFERENCE

Arrangements are going ahead rapidly for the Third Commonwealth and Empire Health and Tuberculosis Conference organized by the National Association for the Prevention of Tuberculosis, which is being held in London from July 8 to 13, 1952, inclusive. This Conference is the third to be held since the war by the NAPT, which for over fifty years has been in the forefront of the campaign for the control of tuberculosis. The Association has been privileged in having the patronage of Royalty throughout its existence. King Edward VII was its founder and first President, King George V and King George VI were Patrons, the Prince of Wales (later King Edward VIII) was President, and the late Duke of Kent also President. Her Royal Highness the Duchess of Kent, who succeeded her husband as President, attended both the post-war Conferences, in 1947 and 1949.

The Conference is open to all interested in preventive medicine, including the medical and veterinary professions, commercial and industrial executives, nurses, social workers, health administrators, members of public authorities, regional hospital boards, et cetera. Representatives from twenty-eight countries have indicated their intention of attending. The countries concerned are Argentina, Australia, Belgium, Bolivia, Brazil, Canada, Denmark, Eire, Fiji, France, Germany, Gold Coast, Hong Kong, India, Japan, Jugoslavia, Libya, Mauritius, New Zealand, Nigeria, Northern Rhodesia, Nyasaland, Singapore, South Africa, Spain, Tanganyika, Trinidad, United States of America.

The Minister of Health (Rt. Hon. H. F. C. Crookshank, MP) has promised to attend on the morning of Wednesday, July 9, when Prevention and Care Work by Local Health Authorities, and Protective Vaccination, will be discussed. The Secretary of State for the Colonies (Rt. Hon. Oliver Lyttelton, DSO, MC, MP) will be present at the session on Tuberculosis in British Colonial Territories on Thursday, July 10, and the Secretary of State for Scotland (Rt. Hon. James Stuart, MVO, MC, MP) at the session on Tuberculosis —A Problem for All Peoples on Tuesday, July 8. Other interesting discussions will be on The Social Worker and the Tuberculous Family, The Patient in Industry, and Non-Respiratory Tuberculosis.

Among those who have already promised to speak are: Dr. I. L. Briggs (Northern Rhodesia), Dr. G. C. Brink (Department of Health, Ontario, Canada), Dr. V. Clausen (Vordingborg Sanatorium, Denmark), Dr. F. van Diense (Chief, BCG Department, Institut Pasteur, Paris), Dr. P. W. Dill-Russell (Nyasaland), Dr. Charles Hill, MP (Parliamentary Secretary, Ministry of Food), Dr. J. B. McDougall, CBE (World Health Organization), Dame Dehra Parker (Minister of Health, Northern Ireland) and Dr. John A. Scott (Medical Officer of Health, London County Council).

A new feature of the Conference will be special smaller gatherings for those with particular interests, whether doctors, nurses, public health officials or social workers, at which appropriate subjects will be discussed. There will be a large exhibition of medical and scientific interest, including art and occupational therapy sections and a mass radiography unit in action. Receptions for delegates are being held at many well-known institutions, and a large number of visits to hospitals and sanatoria have been arranged, in addition to tours of general interest.

All information can be obtained from the NAPT, Tavistock House North, Tavistock Square, London, W.C.1.

STATE AND COUNTY TUBERCULOSIS ASSOCIATION

The Minnesota Tuberculosis and Health Association is the new name adopted in February of this year by the Minnesota Public Health Association. It was considered that the new title better indicates the nature of the association's activity and better differentiates it from the Minnesota Health Department with which it has been frequently confused.

The Minnesota Tuberculosis and Health Association began as the Minnesota Association for the Prevention and Relief of Tuberculosis and was founded in 1906. It was also known as the Minnesota Anti-Tuberculosis Association and by 1909 employed a full-time secretary.

It was in 1914 that the Minnesota Association for the Prevention and Relief of Tuberculosis changed its name to the Minnesota Public Health Association, it being felt that the latter name better indicated the wider field of the association's activities.

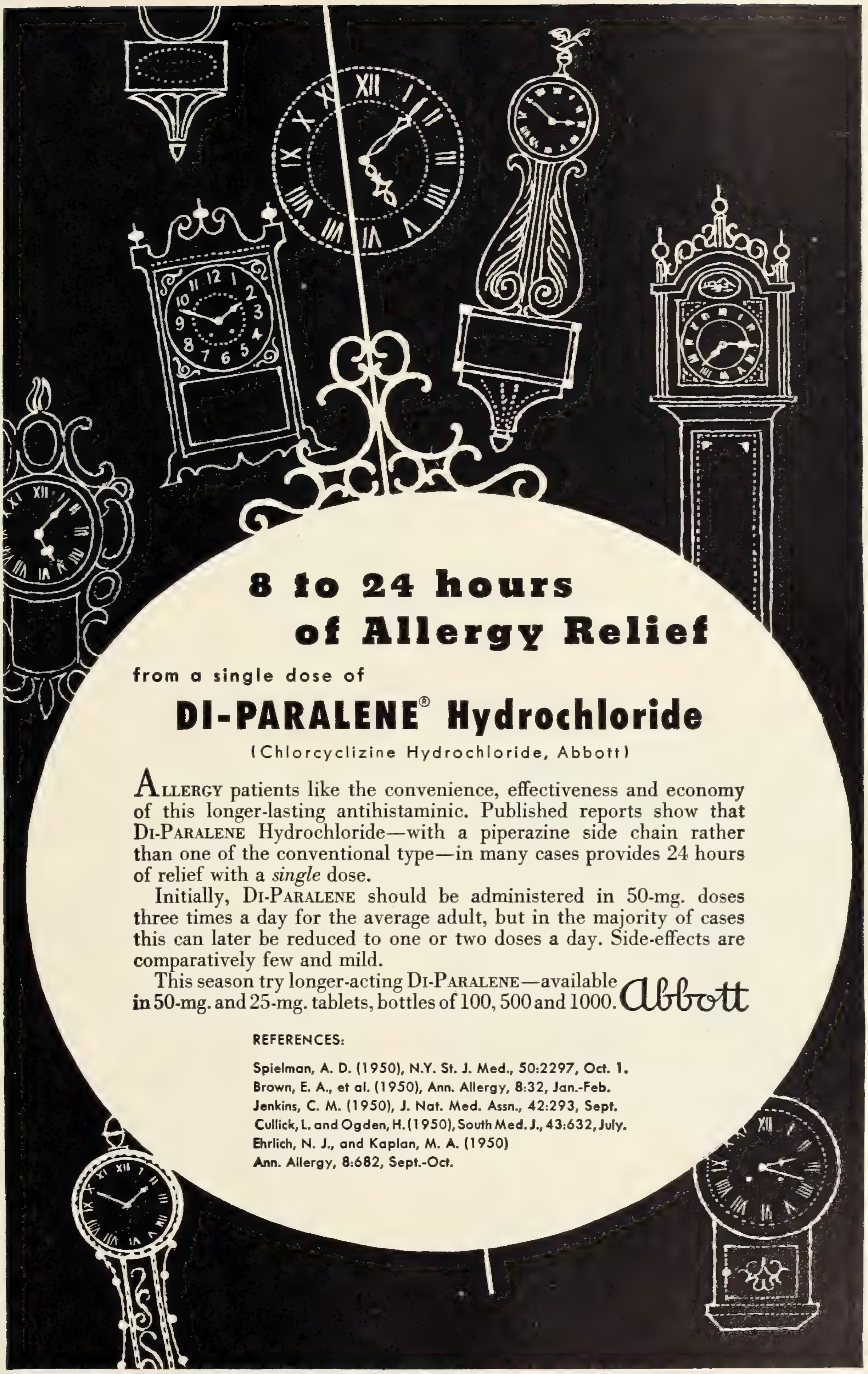
In 1903 an Anti-Tuberculosis Committee had been established in the Associated Charties of Minneapolis and in 1908 similar committees were organized in Saint Paul and Duluth.

In 1914 the Saint Paul Anti-Tuberculosis Committee was turned over to the United Charities of Saint Paul and in 1919 changed its name to the Ramsey County Public Health Association. In 1924 it became a subsidiary of the Minnesota Public Health Association and in 1943 became incorporated.

In 1916 the St. Louis County Public Health Association was first organized as a committee of the Minnesota Public Health Association. This Association was reorganized in February, 1919, under the same name, and a constitution and by-laws were adopted. In 1935 the name of the Association was changed to the Tuberculosis and Health Association of St. Louis County. It was incorporated in 1937.

In 1920 the Anti-Tuberculosis Committee of the Minneapolis Associated Charities became a separate incorporation known as the Hennepin County Tuberculosis As-

(Continued on Page 482)



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Initially, Di-Paralene should be administered in 50-mg. doses three times a day for the average adult, but in the majority of cases this can later be reduced to one or two doses a day. Side-effects are comparatively few and mild.

This season try longer-acting Di-Paralene—available in 50-mg. and 25-mg. tablets, bottles of 100, 500 and 1000. Abbott

REFERENCES:

Spielman, A. D. (1950), N.Y. St. J. Med., 50:2297, Oct. 1.
Brown, E. A., et al. (1950), Ann. Allergy, 8:32, Jan.-Feb.
Jenkins, C. M. (1950), J. Nat. Med. Assn., 42:293, Sept.
Cullick, L. and Ogden, H. (1950), South Med. J., 43:632, July.
Ehrlich, N. J., and Kaplan, M. A. (1950)
Ann. Allergy, 8:682, Sept.-Oct.

STATE AND COUNTY TUBERCULOSIS ASSOCIATION

(Continued from Page 480)

sociation, and in 1948 the Ramsey County Public Health Association became the Ramsey County Tuberculosis and Health Association.

The publication of the state association changed its name in 1923 from the *Minnesota Public Health Association Journal* to the *Northwestern Health Journal*, and in 1929 the title *Everybody's Health* was adopted.

The State and County organizations are supported by Christmas Seal sales and not by taxes.

GENERAL PRACTICE POSTGRADUATE TRAINING

The General Practice Group of the University of Tennessee has established a postgraduate clinical training program for general practitioners. This has been approved by the American Academy of General Practice for its members.

The program is designed for the general practitioner on an individual basis, according to his individual needs. One week to one month of training is offered.

Each doctor will spend morning hours in his choice of any one of the University specialty fields. This will be active work at the resident level. The afternoons will be spent in the General Practice Clinic where the medical students get active general practice experience. Evenings are utilized in the emergency room of the John Gaston Hospital which is suprvised by members of the General Practice Staff.

General practitioners who would like to participate or who desire further information, may write to the General Practice Office, University of Tennessee, Memphis, Tennessee. There is no fee charged for this training.

SOCIETY FOR THE PREVENTION OF ASPHYXIAL DEATH, INC.

A patron of the Society for the Prevention of Asphyxial Death, Inc., interested in making the causes and prevention of asphyxia better known to Minnesota physicians, has kindly offered to donate a copy of "Art of Resuscitation," by Paluel J. Flagg, M.D., to the first 100 physicians who become members of the Society following the release of this information in MINNESOTA MEDICINE.

The Society for the Prevention of Asphyxial Death, Inc., has received the opproval of the AMA. Its president, Dr. Paluel J. Flagg, is an authority on the subject of artificial respiration and is the author of the book, "Art of Resuscitation." The volumes which will be presented to the first 100 new members of the Society will be autographed by the author. The book has received favorable reviews in various journals.

Physicians who wish to take advantage of this offer should make application for membership to the Society for the Prevention of Asphyxial Death, Inc., 2 East 63 Street, New York 21, New York. Membership dues are $5.00.

INTERNATIONAL ACADEMY OF PROCTOLOGY

The International Academy of Proctology will hold its fourth annual meeting in Chicago, June 6, 7, and 8, at the Edgewater Beach Hotel.

The first two days will be devoted to a Seminar presentation of papers relating to the colon and rectum. The entire day of June 8 will be devoted to a teaching film presentation of surgical techniques for diseases of the Colon, Rectum and Anus.

All physicians are cordially invited, whether or not affiliated with the International Academy of Proctology. There will be no registration fee.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The Twelfth Congress of the International Union Against Tuberculosis and the Second International Congress on Diseases of the Chest sponsored by the Council on International Affairs, American College of Chest Physicians, will be held in Rio de Janeiro, Brazil, August 24 to 30.

Physicians wishing to present papers at the Rio Congresses on the subject of tuberculosis are requested to write to Professor Etienne Bernard, Secretary General, International Union Against Tuberculosis, 47 Rue de Courcelles, Paris, France, and those wishing to present papers on nontuberculous diseases of the chest (heart and lung) should communicate with Dr. Andrew L. Banyai, Chairman, Council on International Affairs, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

For further information, write Mr. Murray Kornfeld, Executive Secretary, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The thirtieth annual scientific and clinical session of the American Congress of Physicial Medicine will be held on August 25, 26, 27, 28 and 29 at The Roosevelt Hotel, New York, N. Y. Scientific and clinical sessions will be given on the days of August 25, 26, 27, 28 and 29. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, annual instruction seminars will be held. These lectures will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapists or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

Minnesota Academy of Medicine

Meeting of January 9, 1952

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, January 9, 1952. Dinner was served at 7 p.m. and the meeting was called to order at 8:15 p.m. by Dr. T. A. Peppard, Chairman of the Executive Committee.

There were fifty-two members and two guests present. No business was transacted at this meeting.

Before introducing the speaker of the evening, Dr. Peppard made the following remarks:

"To be seen, the after-dinner speaker must stand up; to be heard, he must speak loudly; to be appreciated, he must sit down. I appear briefly tonight in the role of elder statesman, at the request of Howard Hengstler, my good friend for over forty years. I shall sit down shortly.

"The Academy of Medicine was organized in 1887. Dr. Hengstler was the sixty-sixth president of our organization. The roll call of your revered predecessors is replete with distinguished names: John Fulton, Parks Ritchie, Charles Wheaton, Perry Millard, William A. Jones, Archibald MacLaren, James E. Moore, Alexander Colvin, Eugene Riggs, Arnold Schwyzer, Arthur Hamilton, James S. Gilfillan, and Jennings C. Litzenberg, to mention a few.

"This is your organization, and you can make of it what you will. My fondest hope and wish for the society is that it be as near to the aspirations of the present and future members as it was to the hearts of those pioneers who built so wisely and so well. To this end the officers and executive committee are dedicated and I believe have taken a step in the right direction during the past year. I have confidence that the coming officers will continue along the same lines.

"I should like to suggest that each of you read the Articles of Incorporation and consider what contribution the Academy is making to medical progress in Minnesota, what contribution you individually are making to the Academy, and that each of you seriously endeavor to fulfill its purposes as expressed in the Articles.

"I now introduce Dr. William Howard Hengstler, the retiring President, who will speak to you on the subject: 'Psychiatric Implications of the Atomic Age' Dr. Hengstler." (See page 405.)

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

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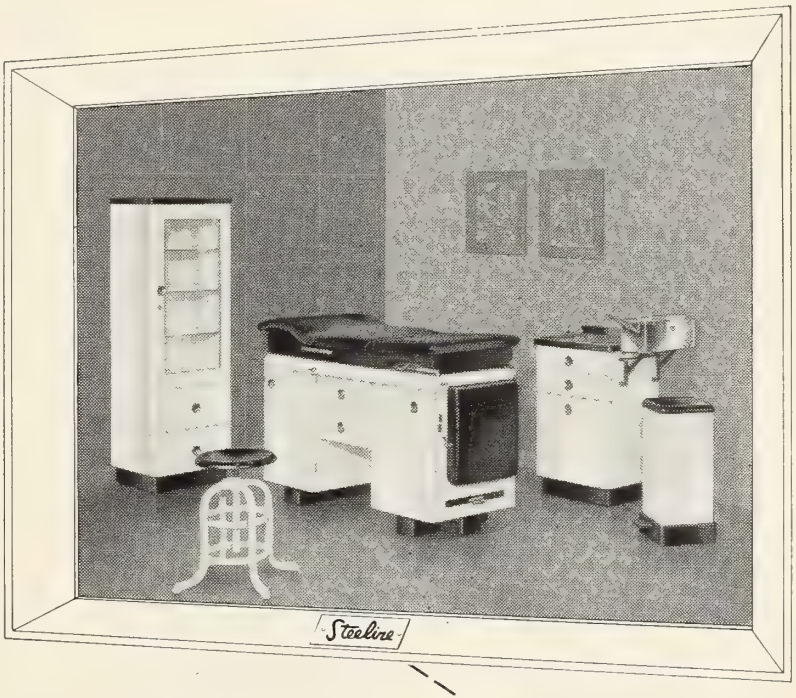

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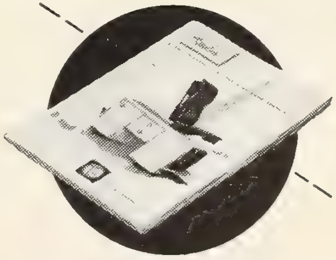

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Migraine In Children

"Migraine may appear during the first years of life. The presence of subjective signs, such as headache and flimmer scotoma, is often difficult to determine in young children. The true nature of the symptoms frequently remains obscure for years."

Vahlquist, B. and Hackzell, G.: Acta Paediatrica *38*: 622 (1949).

NO. OF CASES	SEX	AGE AT ONSET	CYCLIC VOMITING	DURATION OF ATTACK	INTENSITY
31	8 ♀ 23 ♂	3 yrs. (mean)	3 out of 31	2½ hrs.	severe in all cases

TABLE CONT'D

NO. OF CASES	UNILATERAL HEADACHE	NAUSEA	FLIMMER SCOTOMA	VERTIGO	HEREDITY
31	18 out of 31	31 out of 31	12 out of 31	6 out of 31	20 out of 31

(reference given above)

In a study of 400 adult migraine patients, it was revealed that 34% had suffered attacks before the age of 15.* These investigators concluded that childhood migraine was a much greater clinical problem than was previously believed and that psychodynamic mechanisms played an important part in the disease.

These criteria are useful in diagnosis:

Headache attacks with symptom-free intervals plus (at least two of the following) nausea, scintillating scotoma, hemicrania, and hereditary predisposition.

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For children within the age range 7 to 12 years—Cafergot® is administered, one tablet when the attack appears imminent followed by one additional tablet within 30 minutes. Not more than two Cafergot tablets should be administered to children within this age range.

In the adolescent age group, 12 to 18 years of age, the dosage may gradually be increased as necessary up to the usual adult dose, i.e., two tablets when the attack appears imminent followed by one tablet doses at half hour intervals until the attack is aborted. *(Total maximum dose for adults: six tablets for each attack.)*

*Katz, J., Friedman, A.P., and Gisolfi, A.: New York State J. Med. 50: 2269 (Oct.) 1950.

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Woman's Auxiliary

NATIONAL AUXILIARY ANNOUNCES ANNUAL MEETING

A cordial invitation is extended to all members of the Woman's Auxiliary to the American Medical Association, their guests and guests of physicians attending the convention of the American Medical Association, June 8-13, to participate in all social functions and attend the general sessions of the Auxiliary.

Headquarters will be at Conrad Hilton Hotel, Chicago, Illinois. Tickets will be available at the registration desk only. Please register early and obtain badge and program.

Committee meetings will be held on Sunday, June 8, at the Conrad Hilton Hotel. On Monday morning Round-Table Discussions on Program, Legislation, Public Relations and Today's Health will be held. Also, the meeting of the Board of Directors and its luncheon will be held on Monday. A tea in honor of Mrs. Harold F. Wahlquist, President, and Mrs. Ralph Eusden, President-Elect, will be held on Monday afternoon.

The formal opening of the twenty-ninth annual meeting will be at 9 a.m. on Tuesday, June 10, at the Conrad Hilton Hotel. The presidential address by Mrs. Harold F. Wahlquist will be given at this session. Officers will present reports prior to the 12:30 p.m. luncheon, at which Dr. Laurence M. Gould, president of Carleton College, Northfield, Minnesota, will be the featured speaker. At the afternoon session, members will hear reports of state presidents, chairmen of standing committees, and preliminary reports of the Nominating Committee.

Wednesday's general session will present the remainder of state reports and standing committee chairmen. Featured will be a radio broadcast by two doctors' wives from Minnesota: Mrs. Ralph Creighton and Mrs. L. J. Leonard, both of Minneapolis. After the reports of chairmen of special committees, the annual luncheon will be held.

Election of officers will be held on Thursday, June 12, after which the installation of officers, presentation of past president's and president's pin and the inaugural address will take place. The afternoon session will include a meeting of the Board of Directors.

A conference of national officers, directors, national chairmen of standing committees and state presidents and presidents-elect will be held on Friday morning.

General chairman for the annual meeting is Mrs. Warren W. Young.

ST. LOUIS COUNTY HOLDS HEALTH DAY

The St. Louis County Medical Auxiliary Health Day was presented at a meeting for Duluth high school teachers on Saturday, March 1. Approximately 350 teachers attended, including representatives from the elementary schools, the parochial high schools, the

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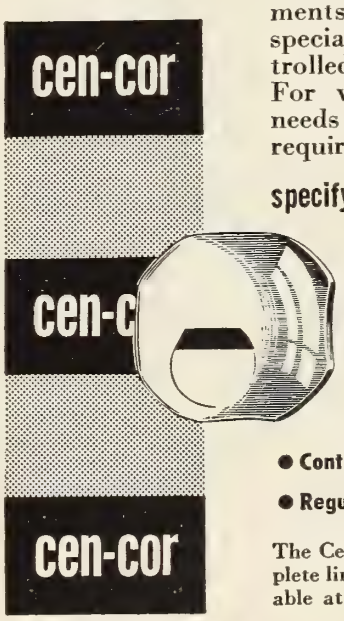
public schools of Cloquet, Proctor, Two Harbors, Minnesota, and Superior, Wisconsin; the University of Minnesota, Duluth Branch, and Superior State Teachers College.

The morning session was a symposium on mental health, specifically on the problems of authority from the viewpoints of the teacher and the student. Dr. C. Knight Aldrich and Miss Lydia Hermann from the University of Minnesota were the speakers, and Mr. Frank W. Hanson, University of Minnesota, Duluth Branch, was the moderator. The afternoon session included a talk by Dr. P. G. Boman, Duluth, on the dangers of self-medication and a discussion of the principles of selection for exercise by Dr. Elizabeth Graybeal, head of Women's Physical Education at the University of Minnesota, Duluth Branch.

Exhibits were arranged by Miss Florence Maney, Director of the School Art Department, and Miss Alice Huisenfeldt, Director of School Nurses.

Factual literature on mental health, cancer, polio, safety, tuberculosis, rheumatic fever and prevention of blindness was arranged for and distributed by the auxiliary committee. Copies of the November, 1951, issue of *Today's Health,* containing an article on mental health for teachers, were given to each member of the audience.

Question and discussion periods at the end of each session showed an active interest by the audience, and comments from the Board of Education and many of the teachers have been most enthusiastic.



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In Memoriam

WARD AKESTER

Dr. Ward Akester, who practiced many years at Marshall, Minnesota, died March 27, 1952, at Veterans Hospital, Minnesota, at the age of seventy-one.

Dr. Akester graduated from the Medical College of Indiana in 1902. He had practiced medicine for fifty years, most of the period at Marshall. After leaving Marshall a few years ago he served on the staff of the state hospital at Fergus Falls until last September when he joined the staff of the Mt. Pleasant State Hospital in Iowa.

He was a veteran of World Wars I and II. He was formerly a member of the Lyon-Lincoln County Medical Society, The Minnesota State Medical Association and the American Medical Association. Mrs. Akester survives him.

HENRY G. HENRIKSEN

Dr. Henry G. Henriksen of Northfield died March 30, 1952. He was eighty-two years of age.

Dr. Henry G. Henriksen was born at Stavanger, Norway, June 6, 1869. He attended Kongsgaard College at Stavanger, but obtained his M.D. degree from Bennett Medical College in Chicago in 1897.

After practicing in Iowa from 1898 to 1910 he moved to New Market, Minnesota, in May, 1910, where he practiced until May, 1921. He practiced in Elko, Minnesota, from June 1923 to September, 1938, when he moved to Northfield.

Dr. Henriksen was a member of the Scott-Carver County Medical Society, the Minnesota State Medical Association and the American Medical Association. He is survived by his widow.

AENAS E. MACDONALD

Dr. A. E. Macdonald of Minneapolis died April 11, 1952, at the age of seventy-six.

Born in Ontario, Canada, April 6, 1876, he obtained his preliminary education at Kingston High School and his M.D. degree from Queen's University at Kingston. He interned at Ottawa General Hospital and took post-graduate study at Harvard Medical School and at the Policlinic in Chicago. He practiced at Morristown for thirteen years before moving to Minneapolis.

Dr. Macdonald was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

ARNOLD EDWIN JOHNSON

Dr. A. E. Johnson, Red Wing, died in Minneapolis on March 27, 1952. After forty-two years of practice, he retired four years ago. While in California on a trip, he became ill and spent many weeks in a hospital in Los Angeles before returning to Minnesota.

Dr. Johnson was born in Kasson, Minnesota, June 23, 1876. He graduated from Rush Medical College in 1902 and settled in Red Wing where he devoted himself to general practice. He was first associated with Drs. Cremer and Claydon before establishing his own clinic, the Red Wing Clinic. He played a large part in the establishment and growth of the Red Wing hospital, now the City Hospital. He was a member of the Goodhue County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Johnson is survived by his wife and three children, Juel of Glendale, California, Mrs. Elaine Barrington of Minneapolis and Kenneth of Little Falls.

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Of General Interest

A news release from the American College of Radiology, under the date of May 1, 1952, calls attention to the **possibility of hypervitaminosis** as a result of overdosage with vitamin A. Currently, twenty-two examples of chronic vitamin A poisoning have been reported in infants and children, the symptoms being loss of appetite, itching and fretfulness. Additional symptoms reported include fissure of the lips, loss of hair, dry skin, jaundice and enlargement of the liver. Self-medication was responsible for the only case of poisoning in an adult so far reported.

* * *

Dr. Walter Halloran, Jackson, was among those who attended a section meeting of the American College of Surgeons at the Radisson Hotel, Minneapolis, on March 24.

* * *

Dr. E. T. Bell, emeritus professor of pathology at the University of Minnesota Medical School, was presented with a medal and citation by the Minnesota Division of the American Cancer Society at a luncheon meeting on April 9 at Hotel Nicollet, Minneapolis. The award was made for Dr. Bell's outstanding service in cancer control. The presentation was made by **Dr. C. G. Uhley,** Crookston, president of the Minnesota Division of the society.

Dr. Bell was a native of Missouri and joined University faculty in 1910. He retired as chief of the Department of Pathology in 1949. However, he continues his research in his laboratory and spends two days a week as consultant at the Minneapolis Veterans Hospital.

Former recipients of the cancer society award are **Dr. Owen Wangensteen, Dr. John J. Bittner** and **Dr. Arthur Kirschbaum.**

* * *

The Urologic and Cutaneous Review was discontinued with the February issue because of the death of Dr. Solomon C. Martin, managing editor and publisher.

* * *

Dr. Deno J. Wedes, who has been associated in practice with Dr. G. F. Engstrom at Belgrade for the past three and one-half years, left during the middle of April for two years of military service in the Army.

* * *

Dr. W. J. Deweese, Bemidji, presented a talk on the blood bank at a meeting of the B.P.W. in Bemidji on April 8.

* * *

Dr. Stewart W. Shimonek, after a period of nearly two years of re-enlistment in the Navy, has reopened his office at 439 Lowry Medical Arts Building, Saint Paul, for the practice of orthopedic surgery.

Eli Lilly and Company, in accordance with its long-established policy, has been replacing all Lilly products in pharmacies and hospitals ravaged by floods in the Missouri and Mississippi River valleys. Lilly representatives in a dozen states, from Montana to Missouri, were directed to make the replacement of flood-damaged Lilly pharmaceuticals and biologicals their first order of business. Lilly has been replacing stocks damaged by uninsurable hazards as fas back as the 1906 San Francisco disaster.

Along with the replacement of stocks, the Lilly company maintains a reserve supply of typhoid vaccine and other biological products which is kept ready for fast shipment during disasters. The shipping personnel of the company stands by twenty-four hours a day.

* * *

Dr. Edward H. Lambert, Rochester, is the first recipient of the Arnold D. Tuttle Memorial Award, which is to be given annually to the author of the best research paper published during the year in the *Journal of Aviation Medicine.* Dr. Lambert received the award in Washington on March 19.

* * *

Mr. Robert T. Bruss of Rolla, Missouri, a medical student at the University of Minnesota, has been awarded a research fellowship of $1,200 by the Public Health Service through the National Heart Institute for a study of cardiac excitability simulating clinical conditions. Another University of Minnesota student, **Howard H. Shear,** Saint Paul, has been awarded a research fellowship of $1,600 by the Public Health Service through the National Cancer Institute for study of an accelerant for mouse mammary cancer.

* * *

Dr. R. F. Pierson, Slayton, has announced that **Dr. J. L. Bader,** a graduate of the University of Nebraska Medical School, will join the staff of the Slayton Clinic on July 1.

* * *

Dr. Lloyd S. Nelson, Minneapolis, spoke on "Respiratory Allergies of Chidren" at a meeting of the Renville County Medical Society on April 8 at Olivia.

* * *

Dr. Fred L. Adair, formerly of Minneapolis and now living at Maitland, Florida, has retired as president of the American Committee on Maternal Welfare. He had been president since the committee was incorporated in 1934. He was also one of the founders and key figures of the Joint Committee on Maternal Welfare, formed in 1919, which broadened into the present organization. Dr. Adair has been succeeded as president by **Dr. Frederick H. Falls,** Chicago.

When Is A Dollar A Dollar?

It is quite common today to hear about a "50c dollar"—a dollar that buys what only 50c would buy in the past.

Many people, however, have not heard about the "60c dollar"—a dollar of investment income that shrinks to 60c after income taxes are paid.

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Dr. D. O. Berge, Roseau, has purchased the former Budd Hospital building in Roseau and plans to convert it into a modern clinic.

* * *

It was announced early in April that **Dr. Chester E. Thiem** had joined the staff of the Mankato Clinic at Mankato. He is a member of the clinic's internal medicine department. A graduate of the University of Minnesota Medical School, Dr. Thiem interned at Ancker Hospital, Saint Paul. He served in the Army from 1946 to 1948, then became associated with the internal medicine department at Ancker Hospital. From 1951 until his move to Mankato, he was a staff member of the Mesaba Clinic at Hibbing.

Dr. A. O. Swenson, Duluth, was the guest speaker at a meeting of St. Louis County Medical Society Auxiliary on April 8 at Duluth. The topic of his talk was "Legislation."

* * *

The United Nations Technical Assistance Administration will make available to the government of Yugoslavia a motion picture made by a former Minneapolis physician. In response to a request from Belgrade for technical aid in the physical rehabilitation field, the Technical Assistance Administration has acquired the late **Dr. Vernon L. Hart's** film 'Congenital Dislocation of the Hip." It will become part of a shipment of films and books to be

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$15,000.00 accidental death *$75.00 weekly indemnity, accident and sickness*	**$24.00** *Quarterly*
$20,000.00 accidental death *$100.00 weekly indemnity, accident and sickness*	**$32.00** *Quarterly*

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used in Yugoslavia as part of the program there for improving services to the chronically handicapped.

Yugoslavia, which has a specially aggravated problem in physical rehabilitation because of the double impact of a hard mountain war against the Nazis and local health conditions, asked the United Nations for help in this field over a year ago. The Technical Assistance Administration sent **Dr. Henry H. Kessler,** orthopedic surgeon and physical rehabilitation specialist, of Newark, New Jersey, to the country for an intensive survey of the problem and present practices in returning the handicapped to as normal a life as possible. He returned with a deep regard for the accomplishments of the professional personnel of the country under tremendous handicaps. He said, for example, that he would be proud to achieve the record of a surgeon he met who had not lost a patient in hundreds of operations without having any of the operating room facilities he, Dr. Kessler, considered normal and essential.

Dr. Kessler reported to the Yugoslav government that their central need was for an integrated approach to the patient. He recommended the training as a team of eight persons concerned with all phases of the patient's return to a useful life. The Yugoslav government agreed and named its candidates. They were awarded training fellowships under the UN technical assistance program and have now completed their studies. Dr. Kessler's own Physical Rehabilitation Institute in West Orange, New Jersey, was one of the stops on the training tour.

Upon the return to Belgrade of the team of eight, they were installed by the government as a faculty of a training institute to turn out personnel for services to the handicapped in the provincial centers. It is in furtherance of this internal training program that the Yugoslav government asked for training films and literature, and that the United Nations acquired Dr. Hart's film to meet the Yugoslav need.

The Technical Assistance Administration is now dispatching an average of an expert a day to countries in all parts of the world to meet the requests of governments in other social welfare fields, in power production, transportation, and other economic services, and in all types of public administration. Experts have been employed from thirty-five countries. Training opportunities are also being awarded at the rate of fifty to sixty a month. **Dr. Hugh L. Keenleyside** of Canada is director-general of the Technical Assistance Administration.

* * *

Dr. Melvin G. Oppen moved from New Ulm on April 15 to start a medical practice at Deephaven. He had practiced at New Ulm since July, 1951, in association with **Dr. Howard A. Vogel.**

* * *

Dr. Francis Swain, recently associated with the Earl Clinic in Saint Paul, has joined the newly formed Oxboro Clinic at 9820 Lyndale Avenue South, Minneapolis. He is confining his practice to obstetrics and gynecology.

Dr. Swain is a graduate of the University of Louis-

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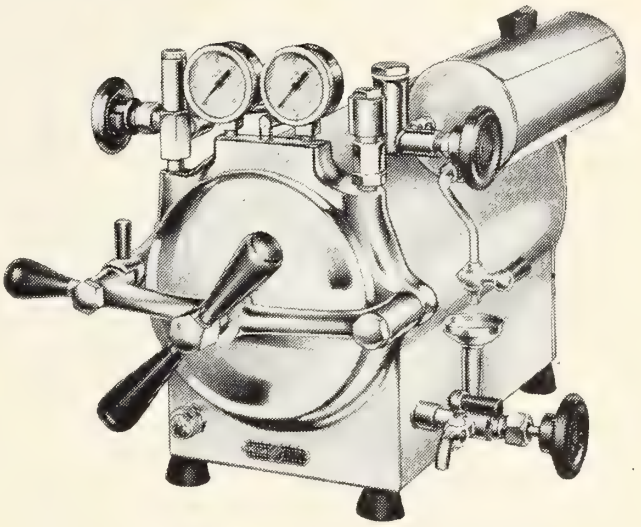

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ville School of Medicine, class of 1942, and he served his internship at Grady Hospital, Atlanta, Georgia. He was a captain in the Army Medical Corps for two years in World War II and later took a residency in obstetrics and gynecology at the University of Iowa.

* * *

Dr. Gordon R. Kamman, Saint Paul, presented a paper entitled "Rorschach Test and Its Forensic Implications" at a meeting of the American Academy of Forensic Sciences at Atlanta, Georgia, on March 7. He also gave a talk at a meeting of the Cerro-Gordo County Medical Society on March 11 at Mason City, Iowa, where he spoke on "Psychotherapy in General Practice."

* * *

The University of Minnesota chapter of **Nu Sigma Nu** has incorporated the Nu Sigma Nu Medical Foundation—benevolent, charitable and educational in character—for the purpose of raising a fund of $100,000 to build a fraternity house and headquarters for the foundation. The building will be erected on a lot already owned by the fraternity on Oak Street Southeast and the River Boulevard in Minneapolis. **Dr. E. S. Platou**, 953 Medical Arts Building, Minneapolis, is chairman of the committee in charge of the undertaking.

* * *

Dr. Charles Bolsta, retired Ortonville physician, was the subject of an extensive feature article in the *Ortonville Independent* on April 3. The article described the life of service given the community by Dr. Bolsta, who retired in 1950 after a half century of medical practice.

* * *

During the first week of April, **Dr. W. L. Herbert** moved into his newly remodeled offices at 40th Avenue and Quincy Street, Columbia Heights (Minneapolis suburb). The offices provide increased space and have made it possible to install additional new and modern medical equipment. Dr. Herbert has been a resident of Columbia Heights since 1941 except for a period when he was in military service.

* * *

Dr. E. E. Novak, New Prague, was the principal speaker at a meeting of the Adult Farmers, Future Farmers and Young Farmers at Montgomery on March 25. He discussed brucellosis.

* * *

Dr. Vernon D. Smith, Saint Paul, won second place in the 45- to 54-year class of the first annual ski racing event staged by the Northwestern Medical Association at Sun Valley, Idaho, late this past winter. Dr. Smith was clocked at 1:06.2, wheras the winner, **Dr. Lorenze Ruddy** of Sacramento, was timed at 1:01.

Dr. J. J. Hochfilzer, Saint Paul, the only entry in the 55-year and older class, finished in 3:34.4.

* * *

Dr. and Mrs. J. P. McDowell, Saint Cloud, returned late in March from a vacation trip to the West Coast.

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Surgical Anatomy and Clinical Surgery, two weeks, starting June 16, September 22.
Surgery of Colon and Rectum, one week, starting May 12, June 2.
Gallbladder Surgery, ten hours, starting June 16.
Basic Principles in General Surgery, two weeks, starting September 8.
General Surgery, one week, starting May 12, October 6.
Breast and Thyroid Surgery, one week, starting June 23.
Esophageal Surgery, one week, starting June 23.
Thoracic Surgery, one week, starting June 2.
Fractures and Traumatic Surgery, two weeks, starting June 16.
GYNECOLOGY—Intensive Course, two weeks, starting June 16.
Vaginal Approach to Pelvic Surgery, one week, starting June 9, September 22.
OBSTETRICS—Intensive Course, two weeks, starting June 2, September 29.
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Cerebral Palsy, two weeks, starting July 7.
MEDICINE—Electrocardiography and Heart Disease, two weeks, starting July 14.
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It was announced on April 1 that four former Mayo Foundation fellows had been appointed to the staff of the Mayo Clinic. The new consultants are **Dr. Edmund C. Burke** and **Dr. Alvin B. Hayles**, both in pediatrics; **Dr. Carl E. Johnson** and **Dr. Reginald A. Smith**, both in obstetrics and gynecology.

* * *

Dr. R. N. Barr, of the Minnesota Department of Health, has been named president-elect of the Middle States Public Health Association. He will take office in April, 1953.

* * *

Principal speaker at a meeting of the Women's Auxiliary of Immanuel Hospital at Mankato on April 4 was **Dr. J. Donald Sjoding**, Mankato physician. He spoke on "Foreign Bodies in the Air and Food Passages."

* * *

Dr. Clyde A. Undine, Minneapolis, attended a meeting of the American College of Physicians at Cleveland, Ohio, from April 21 to 25.

* * *

Dr. Robert T. Petersen, St. Cloud, and **Dr. Edward E. Mason**, on the staff of the University of Minnesota Hospitals, were among the guest speakers at a Stearns County cancer workshop held at St. Cloud on April 3.

* * *

Dr. John S. Siegel, Virginia, attended a five-day meeting of the American Academy of General Practice at Atlantic City late in March.

* * *

Dr. Christopher Graham, Rochester, the only living member of the original Mayo Clinic staff, celebrated his ninety-sixth birthday on April 3.

* * *

The *Austin Herald* on April 12 printed a feature story about **Dr. John G. W. Havens**, seventy-five-year-old Austin physician, who keeps "young" by keeping busy with his numerous hobbies. During the years Dr. Havens has built radio sets, experimented with x-rays, carved figures and marionettes from wood, grown prized dahlias, collected antique medical instruments, and studied astronomy with a home-built telescope, the nine-inch mirror for which was ground and polished by himself.

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Dr. Ronald W. Barr, formerly of Sioux Falls, South Dakota, has joined the staff of the Montevideo Clinic. A graduate of the University of Minnesota Medical School, Dr. Barr practiced at Sioux Falls for four years before moving to Montevideo.

* * *

Dr. W. F. Mercil, Crookston, attended a joint meeting of the American Committee on Maternal Welfare and the American Academy of Obstetrics and Gynecology at Cincinnati, Ohio, during the first week of April.

* * *

Plans for a "walking blood bank" in the Cloquet community were announced on April 1 by **Dr. Paul B. Monroe**, Cloquet. The plan called for determining and recording the blood type of each of several hundred volunteer donors. Then in case of emergency in the city, it would be easy to locate proper donors quickly for direct transfusions. Under the plan it would be unnecessary to set up a standard blood bank with storage facilities Dr. Monroe pointed out.

* * *

Dr. S. W. Giere, Benson, escaped the rigors of late winter for a few weeks by taking a vacation in Mexico. He returned to Benson during March.

* * *

Dr. Warren W. Haesly, formerly of Wykoff, has moved to Rushford and opened offices for the practice of medicine. A native of Winona, Dr. Haesly received his medical training at Northwestern University and interned at St. Luke's Hospital, Chicago, where he also did some postgraduate work in urology and pediatrics.

* * *

Dr. H. A. Palmer, Blackduck, gave a refresher course in first aid to members of the Blackduck fire department and other interested persons on March 25. Included was a demonstration of the use of a resuscitator.

* * *

Dr. and Mrs. James B. McBean, Rochester, and their four daughters spent the month of April on a vacation trip to England, where they visited Mrs. McBean's family. During their trip they also toured Paris and Ireland.

* * *

Formerly of Scribner, Nebraska, **Dr. Herbert G. Ahrens** has joined the staff of the Worthington Clinic. A graduate of the University of Nebraska, Dr. Ahrens interned at Emanuel Hospital, Omaha, and then served in the Army for two years during World War II. He then completed a three-year fellowship in internal medicine at the Mayo Foundation, after which he practiced at Scribner for a year before moving to Worthington.

* * *

The seventeenth annual John W. Bell tuberculosis lecture was given by **Dr. Esmond R. Long**, Philadelphia, at a meeting of the Hennepin County Medical Society in Minneapolis on April 7. Dr. Long is director of the Henry Phipps Institute and director of medical research for the National Tuberculosis Association.

* * *

In Glenwood **Dr. J. T. Gericke** has moved into newly remodeled offices designed for efficiency and pleasing appearance. Dr. Gericke has practiced at Glenwood for six years.

* * *

Dr. Edgar V. Allen, Rochester, was named a vice president of the American Heart Association at a meeting of the organization in Cleveland during the middle of April.

* * *

An annual award to the physician who had attended and taken part in the greatest number of postgraduate medical and surgical clinics during the past year at the University of Minnesota Center for Continuation Study was presented to **Dr. G. F. Engstrom,** Belgrade, on April 9.

* * *

Dr. Frederick D. Roth, formerly of Lewiston, has joined the Mankato Clinic and is affiliated with its department of ophthalmology. A graduate of Marquette University, Dr. Roth recently completed three years of postgraduate training at Boston City Hospital. Before his hospital residency in Boston he was in general practice at Lewiston.

Dr. John Fischer, formerly of Owatonna, has purchased the practice of **Dr. H. J. Kurtin** and **Dr. J. J. Kurtin** at Blooming Prairie.

Dr. H. J. Kurtin, who began practice at Blooming Prairie in 1940, is going to begin this summer a two or three year course in ophthalmology and otolaryngology at Harvard Medical School. Dr. J. J. Kurtin, who joined his brother in practice in 1950, expects to go into military service with the Army. Until called, however, he plans to be a resident in pathology at St. Mary's Hospital, Milwaukee.

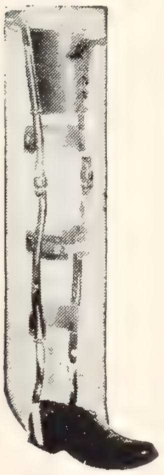
Dr. Fischer, a graduate of Washington University School of Medicine, St. Louis, has been associated in practice for the past two years with Dr. John McIntyre at Owatonna.

* * *

Dr. N. M. Mensheha became associated in practice with **Dr. J. A. Poirier** at Forest Lake on April 1. Dr. Mensheha, who recently completed one and one-half years of study at Bethesda Hospital, Saint Paul, is a native of the Ukraine. He came to the United States less than three years ago. In that time he has learned to speak English fluently and has passed the necessary medical examinations for licensure. He is a graduate of the University of Munich.

* * *

After seventeen years of practice at Lakeville, **Dr. Kenneth E. Stein** announced early in April that he planned to move to Pierz to become associated



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in practice with his brother, **Dr. R. J. Stein.** He also announced that his practice in Lakeville would be taken over on July 1 by **Dr. Wallace Anderson** of Minneapolis.

* * *

Dr. George E. Williams, psychiatrist director of the Counseling Clinic of the Rochester—Olmsted County Health Unit, spoke on "Emotional Development" at a meeting of the Chatfield Women's Community Club at Chatfield on March 25.

* * *

Dr. James R. Fox, Minneapolis, a faculty member of the University of Minnesota Medical School, has been given a staff appointment to lecture at the University of Edinburgh in Scotland. Dr. Fox sailed for England from New York on April 23.

* * *

Dr. John Gridley moved to Arlington late in March and opened offices for the practice of medicine. He has formerly practiced at Glencoe and Granite Falls.

* * *

The annual George E. Fahr Lecture was presented at the University of Minnesota on April 8 by **Dr. Robert E. Gross,** surgeon-in-chief of Children's Hospital, Boston.

* * *

Dr. Arnold E. Naegeli, formerly of Saint Paul, has opened the Newport Harbor Medical Center at Newport Beach, California, in association with **Dr. Norman Carlson,** obstetrician and pediatrician, and **Dr. Verne Schulberg,** internist.

MINNESOTA BLUE CROSS-BLUE SHIELD PLANS

In a recent review of Blue Shield claims, it was found that eleven involving Workmen's Compensation and one involving Veterans care eligibility had been paid. In such cases, the contract excludes from Blue Shield coverage any claims for which full or partial payment has been made under the Workmen's Compensation Act or by the Veterans Administration. To secure needed information in these cases two questions requiring a "yes" or "no" answer appear in the Medical Service Report, one asking if the claim is covered by Workmen's Compensation and the other asking if Veterans' benefits apply in the case.

Analyzing the claims, it was found that in six cases the "No" was checked and in six cases neither the "Yes" nor the "No" was checked. This indicates that in all twelve cases inadequate information to handle the case properly was received in the Medical Service Report. In other words, there was no evidence that eleven cases involved Workmen's Compensation nor that one case might have Veteran's benefits.

Further investigation revealed that Veterans' benefits were not available in the one case, and in only three of eleven cases reported as covered by Workmen's Compensation had an award of compensation been made. In each of the three cases covered by Workmen's Compensation, in order to avoid misuse of funds by the paying of such unwarranted claims, it has been necessary to request a refund from either the doctor or subscriber. In one instance no payment was received by the doctor from any other source, so a refund has

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been requested from the subscriber. In the remaining two cases, no reply regarding other payment has been received from the attending doctor and further action in these cases is pending.

The Blue Shield office is anxious to avoid the necessity of requesting refunds in such cases. From the foregoing facts, it is apparent that the co-operation of physicians is vitally necessary in answering all questions which appear on the Medical Service Report. This would save considerable time and expense, and also it would avoid misunderstanding by both physician and subscriber.

Constant efforts are being made to eliminate duplicate requests for information in processing Blue Shield and Blue Cross claims. Recently, a form letter has been adopted to be used in obtaining the medical history necessary to processing a claim presented within the first ten months of the contract's effective date. This form letter is sent to the doctor in duplicate. *Both the original and the copy* should be returned to the Blue Cross-Blue Shield office where one copy becomes part of the Medical Claim file, and the other copy becomes part of the Hospital Admission Department record. It is hoped that this process will suffice in giving identical information regarding both medical and hospital claims, and also will eliminate any duplicate questionnaires which the attending physician may have previously been requested to complete.

Blue Cross Activities

James E. Stuart, executive director, Hospital Care Corporation, Cincinnati, was elected chairman of the Blue Cross Commission at the Commission meeting held on April 3, in San Francisco, following the 1952 Annual Conference of Blue Cross Plans, March 30 to April 3. He succeeds William S. McNary, executive vice president, Michigan Hospital Service, Detroit.

J. Philo Nelson, executive director, Hospital Service of California, Oakland, succeeded Stuart as vice chairman of the Commission while Abraham Oseroff, vice president, Hospital Service Association of Pittsburgh, was re-elected treasurer.

Stuart has served as executive director of the Cincinnati Blue Cross Plan since 1942. Prior to that time he was director of public welfare, Hamilton County (Cincinnati) for two years; associate director of the Hamilton County Community Chest for three years; and executive director of the Child Welfare Board for four years.

John R. Hill, executive director, Tennessee Hospital Service Association, Chattanooga; Robert T. Evans, executive director, Blue Cross Plan for Hospital Care, Chicago; Arthur M. Calvin, executive director, Minnesota Hospital Service Association, St. Paul; D. W. Ogilvie, director, Blue Cross Plan for Hospital Care, Toronto, were elected to the Commission to succeed W. W. McCrary, Jr., Memphis; Wm. S. McNary; Leon R. Wheeler, Milwaukee; and E. Duncan Millican, Montreal, respectively.

Rt. Rev. Msgr. George Lewis Smith, Diocesan Director of Catholic Hospitals in South Carolina, Aiken, was named to serve on the Commission as one of the three representatives of the American Hospital Association, replacing Dr. W. B. Seymour, director, University Hospitals of Cleveland.

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AVAILABLE IMMEDIATELY—Attractive opening in Obstetrics, also Internal Medicine. Address E-267, care Minnesota Medicine.

WANTED—General practitioner to take over well-established practice, 80 miles south of the Twin Cities. Address Russell L. Baker, M.D., Hayfield, Minnesota.

WANTED—General practitioner interested in small town practice in two-man clinic. Opportunity for locum tenens on trial basis, or permanent association or partnership, if mutually agreeable. Address E. E. Emerson, M.D., Osakis, Minnesota.

FOR SALE—Busy rural practice grossing $20,000. Ground floor, modern office. No competition. Essential to community. Practice with complete equipment, $4,000. Address E-310, care Minnesota Medicine.

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WANTED—Assistant or partner in established practice, small city, good community, Southern Minnesota. Address E-316, care Minnesota Medicine.

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WANTED—Associate to join established clinic. Class 4 draft. Central Iowa. Opportunity for further academic training, if desired later on. Address E303, care Minnesota Medicine.

WANTED—Eye, Ear, Nose and Throat man, to join established clinic. Central Iowa. Address E-304, care of Minnesota Medicine.

OPPORTUNITY FOR DOCTORS—In good staple business town. Prosperous farming community, 55 miles on trunk highway from Twin Cities. 11 miles to new 72-bed community hospital. New office space available. Address E-314, care Minnesota Medicine.

WANTED—Assistant associate to two general practitioners for clinic in small town, southwestern Minnesota. Doctor with good training desired. Excellent hospital facilities. Give complete personal and professional qualifications and financial arrangements desired. Address E-315, care Minnesota Medicine.

WANTED—Physician for locum tenens during July and August. Near Minneapolis. Permanent position to right man. Address E-311, care Minnesota Medicine.

WANTED—Medical laboratory technologist. Prefer a girl who is a college graduate and has had training or experience in x-ray work as well as laboratory. Salary is open. Pleasant working conditions in clinic located in southwestern Minnesota. Box 207, Worthington, Minnesota.

PHYSICIAN WANTED—Opportunity for physician desiring assured income, housing, and tuberculosis training under expert supervision, at Minnesota State Sanatorium near Walker. This sanatorium provides care and treatment for all types of tuberculosis. All benefits of State Civil Service: $7,896 to $8,856 per year. Address E-312, care Minnesota Medicine.

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PANCREATITIS

(Continued from Page 419)

severe, more prolonged attacks of pain, prominent physiological alterations in glucose metabolism and by development of steatorrhea.

When radiological evidence of calcification of the pancreas is found, the diagnosis is clear. Treatment, suffice it to say, is generally disappointing. Paravertebral injections, as mentioned before, may control the acute pain. Surgical therapy is none too satisfactory. Long continued biliary drainage, anastomosis between the common bile duct and duodenum and between the pancreatic duct and the duodenum, section of the sphincter of Oddi, partial and total pancreatectomy and sympathectomy, splanchnicectomy and vagotomy have been helpful in relieving pain and preventing the recurrence of attacks in some instances. Whipple, in 1946, collected reports of twelve cases of total pancreatectomy from the literature and added two of his own for this condition. This is a heroic procedure with a great morbidity and high mortality rate and would appear to be justified only in an occasional patient with intractable pain, perhaps already diabetic. Before carrying out such an extensive procedure, consideration should be given to less serious operations such as section of the nerves: ganglionectomy on the right side (7th to 12th) with or without resection of the right splanchnic nerve, which have been advocated.

Conclusions

In conclusion, I would like to re-emphasize that:

1. Pancreatitis is a much more common disease than generally acknowledged. This increase is a relative one since the diagnosis is more frequently made in recent years because of the serum amylase test.

2. The serum amylase test should be routine in all cases of acute intra-abdominal emergencies but we should also bear in mind its limitations and irregularities.

3. There is such an entity as chronic relapsing pancreatitis as first described by Comfort in 1946.

4. Conservative therapy is in general the best policy except in those few cases of the hemorrhagic type with definite surgical indications.

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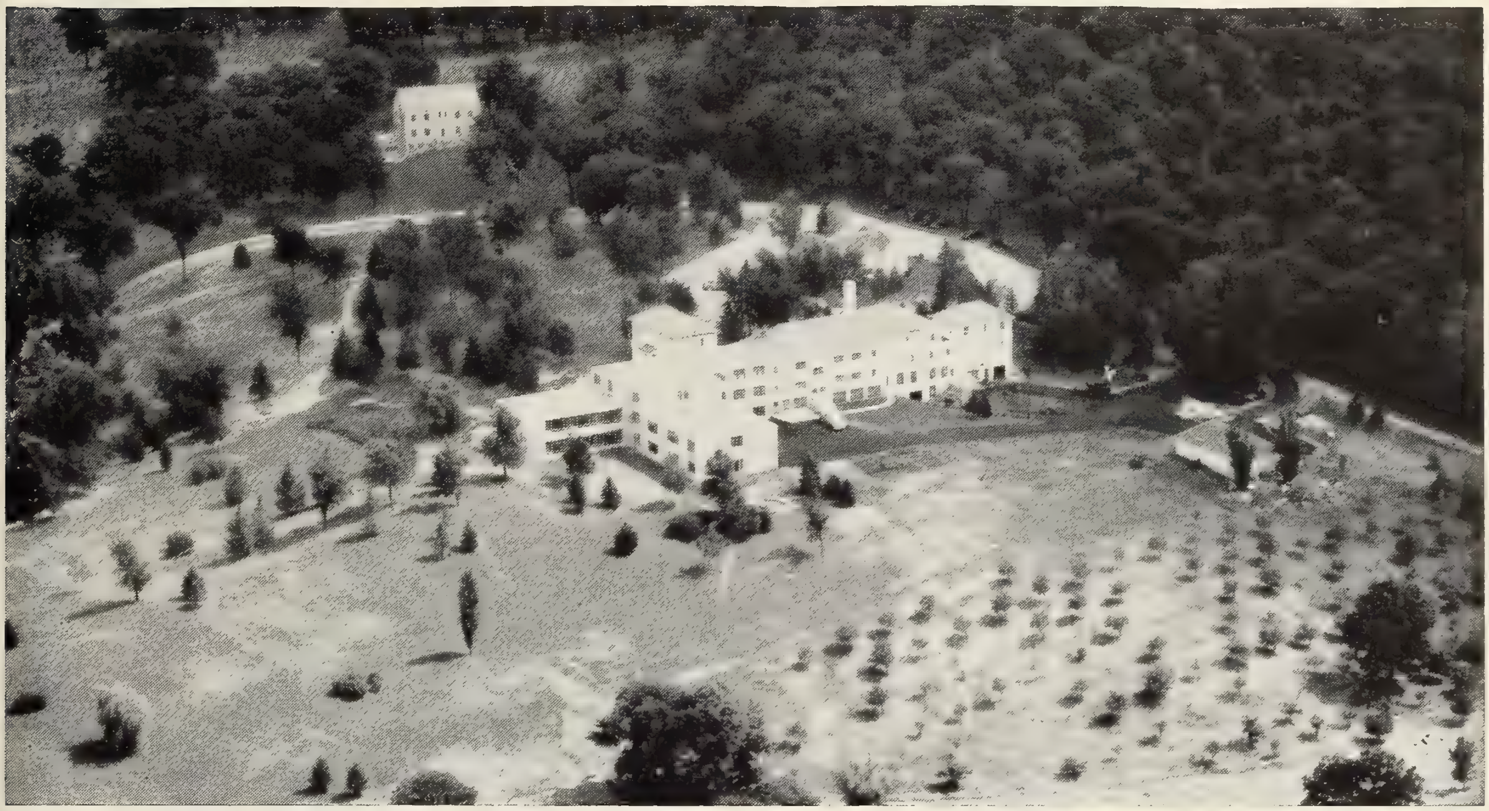

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1. Greene, G. G.: Kentucky M. J. *50*:8, 1952.
2. Stevenson, C. S., et al.: Am. J. Obst. & Gynec. *61*:498, 1951.

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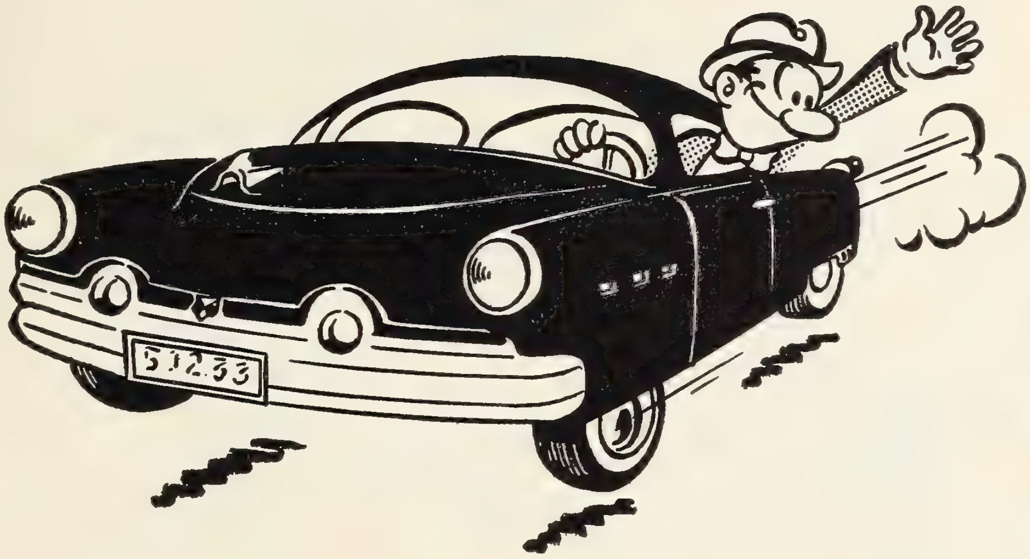

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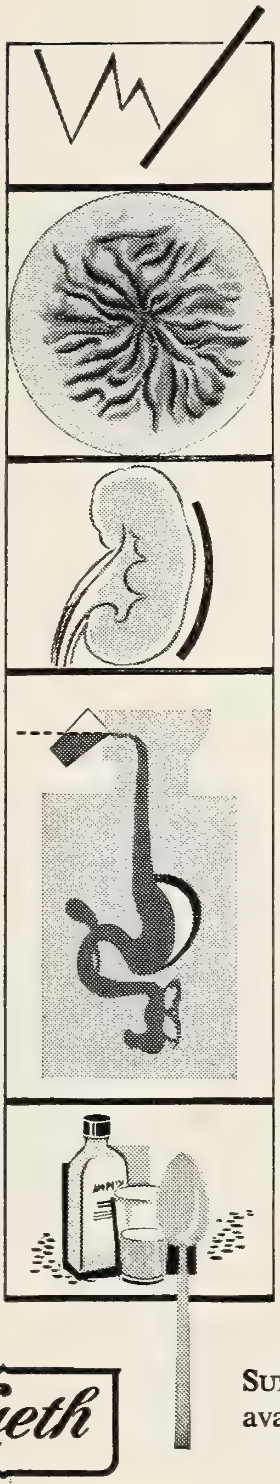

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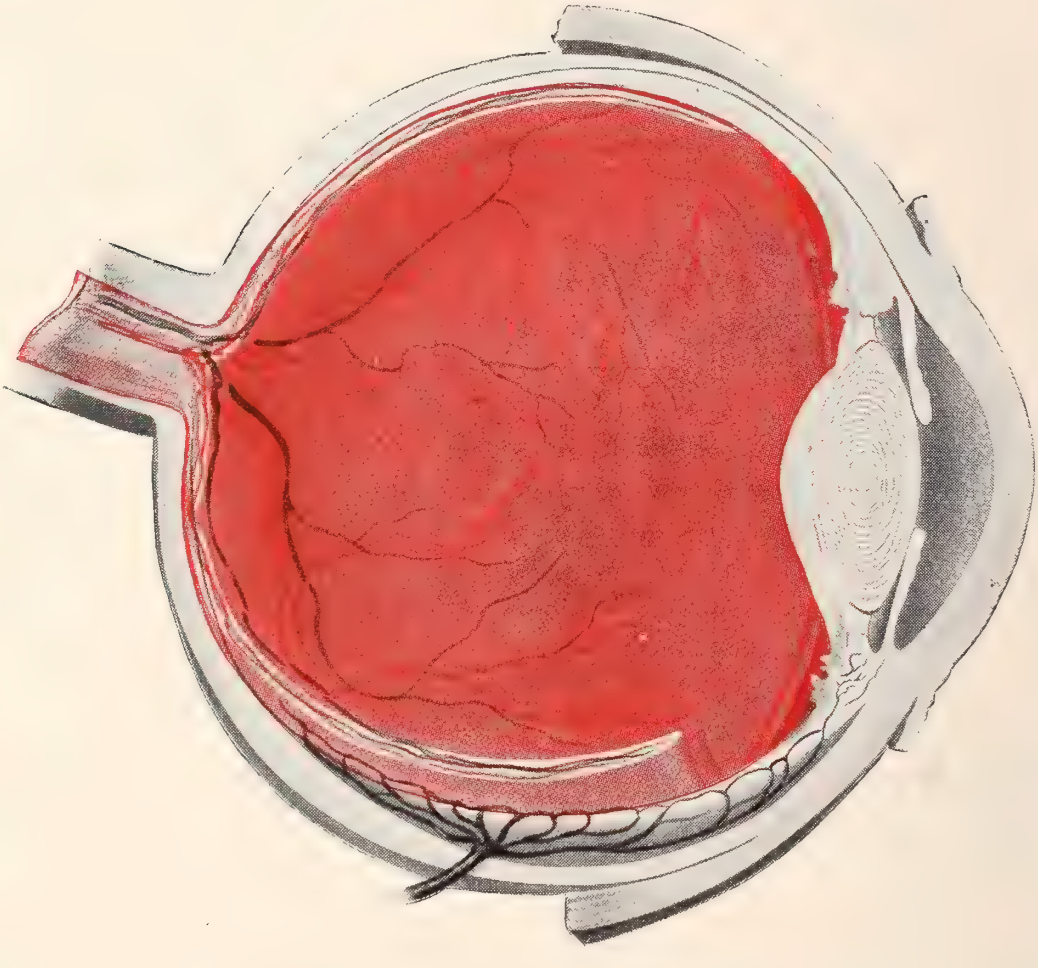

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1. Mitsui, Y., et al.: Antibiotics & Chemotherapy 1:253 (July) 1951.
2. Mitsui, Y., and Tanaka, C.: Antibiotics & Chemotherapy 1:146 (May) 1951.

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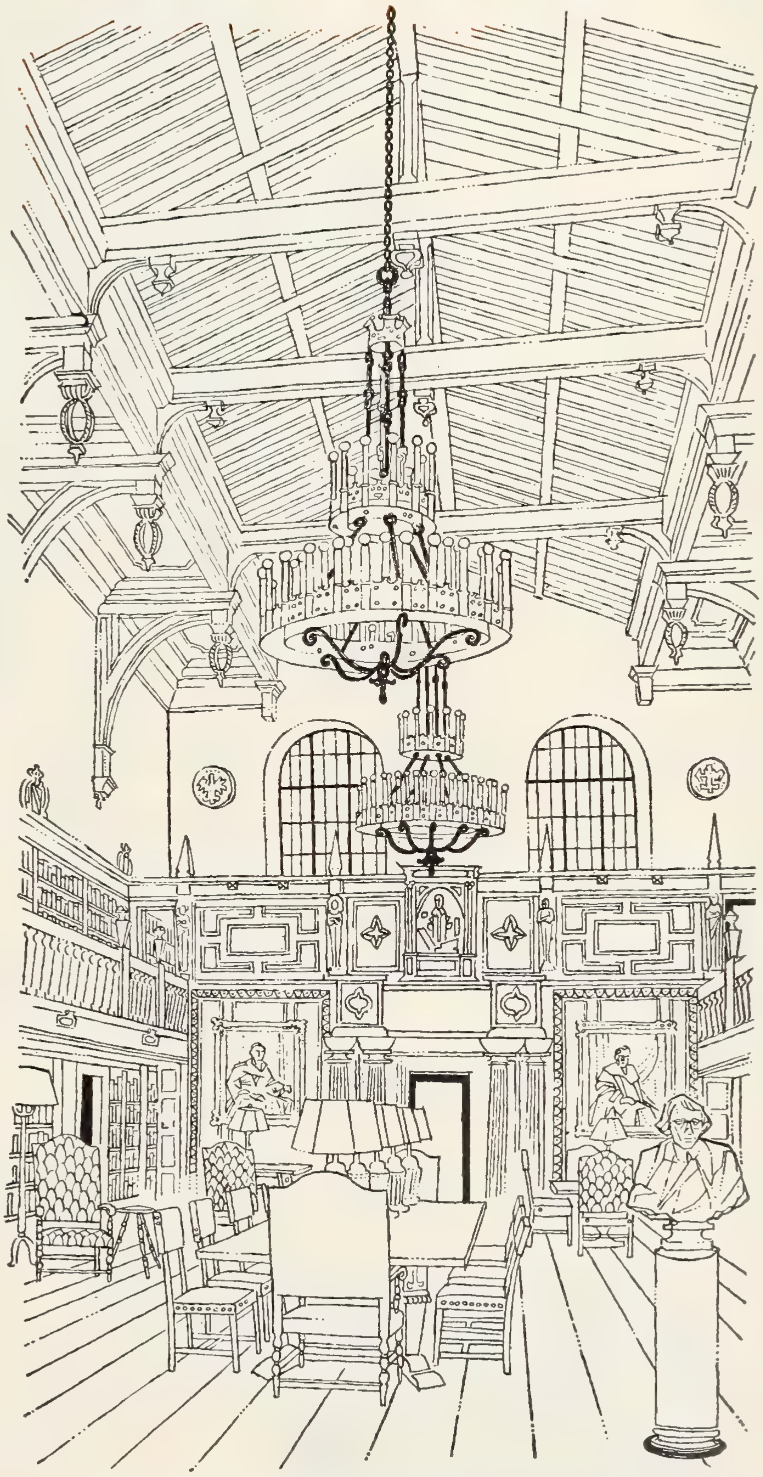

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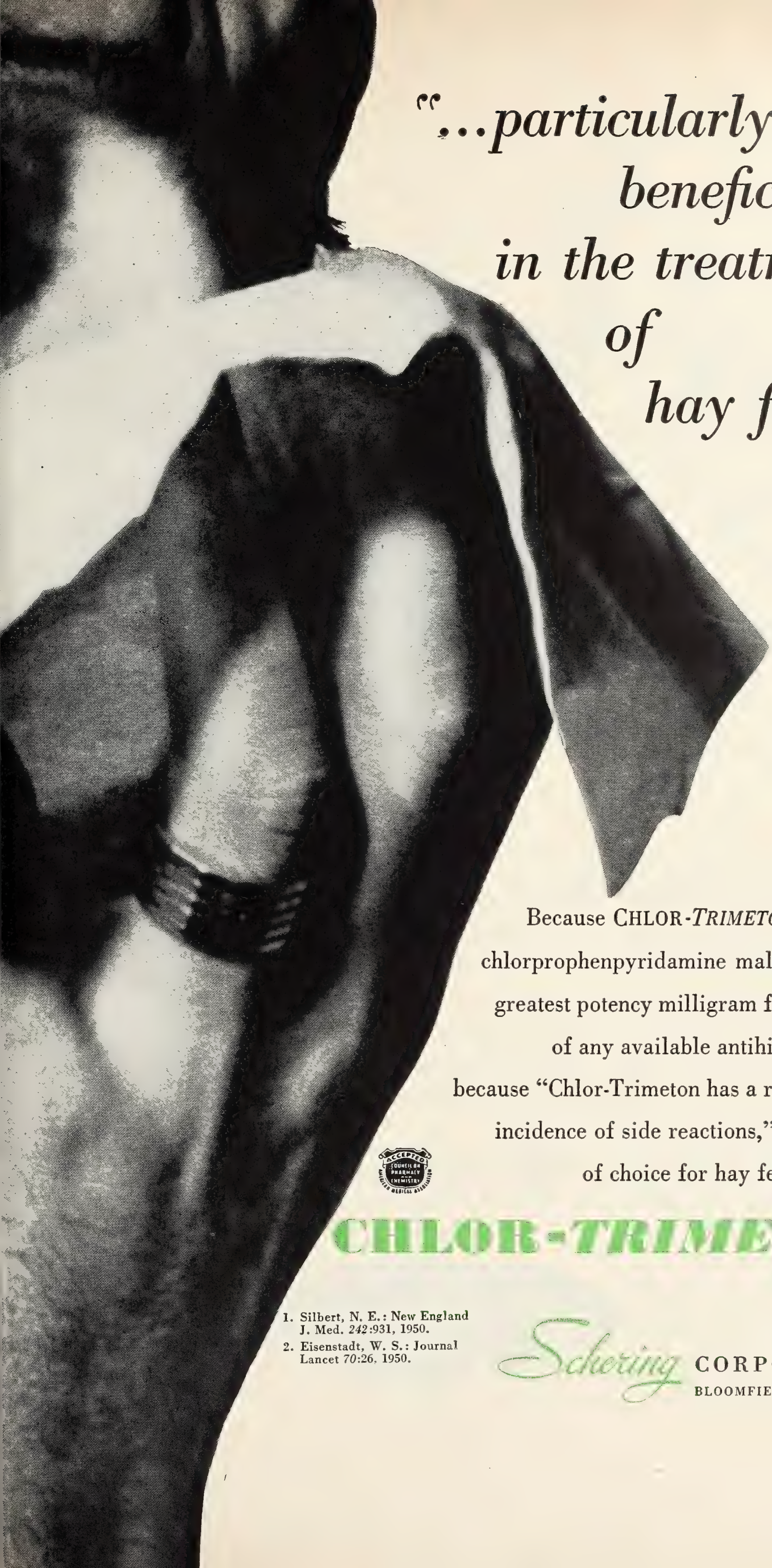

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1. Silbert, N. E.: New England J. Med. *242*:931, 1950.
2. Eisenstadt, W. S.: Journal Lancet *70*:26, 1950.

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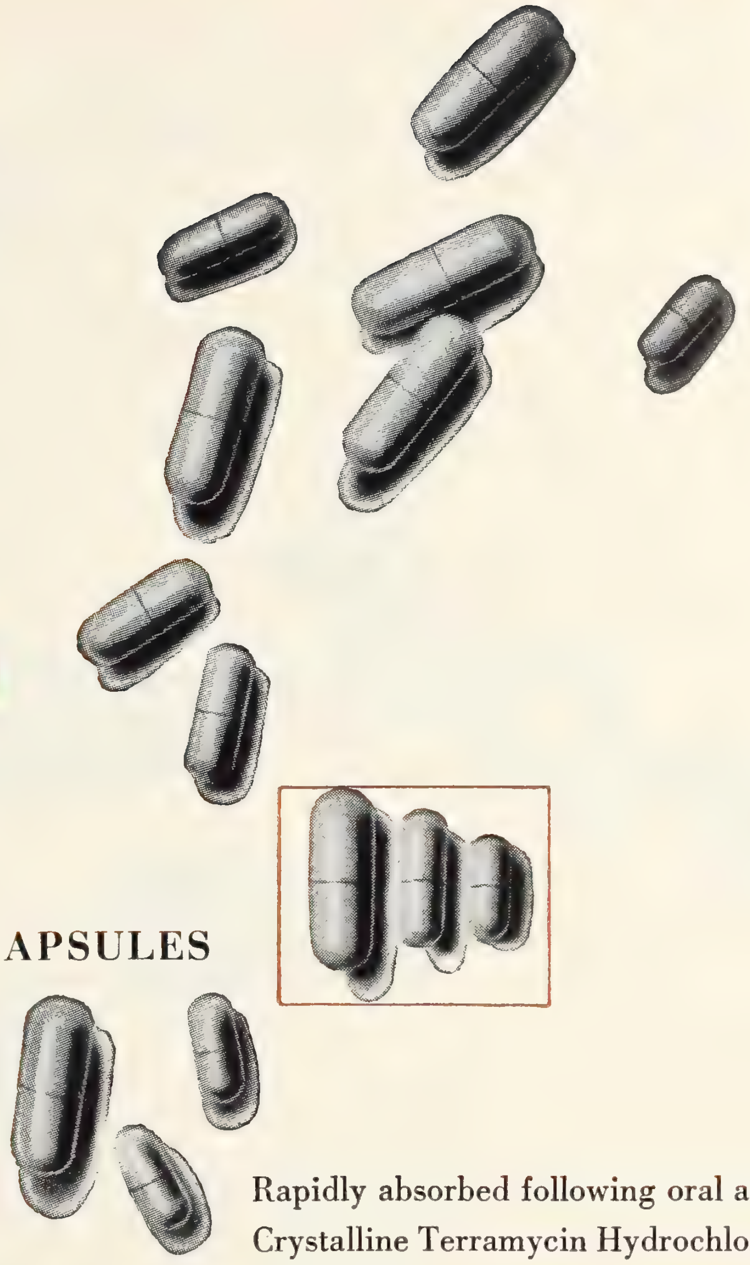

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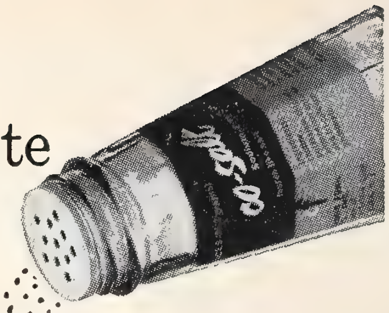

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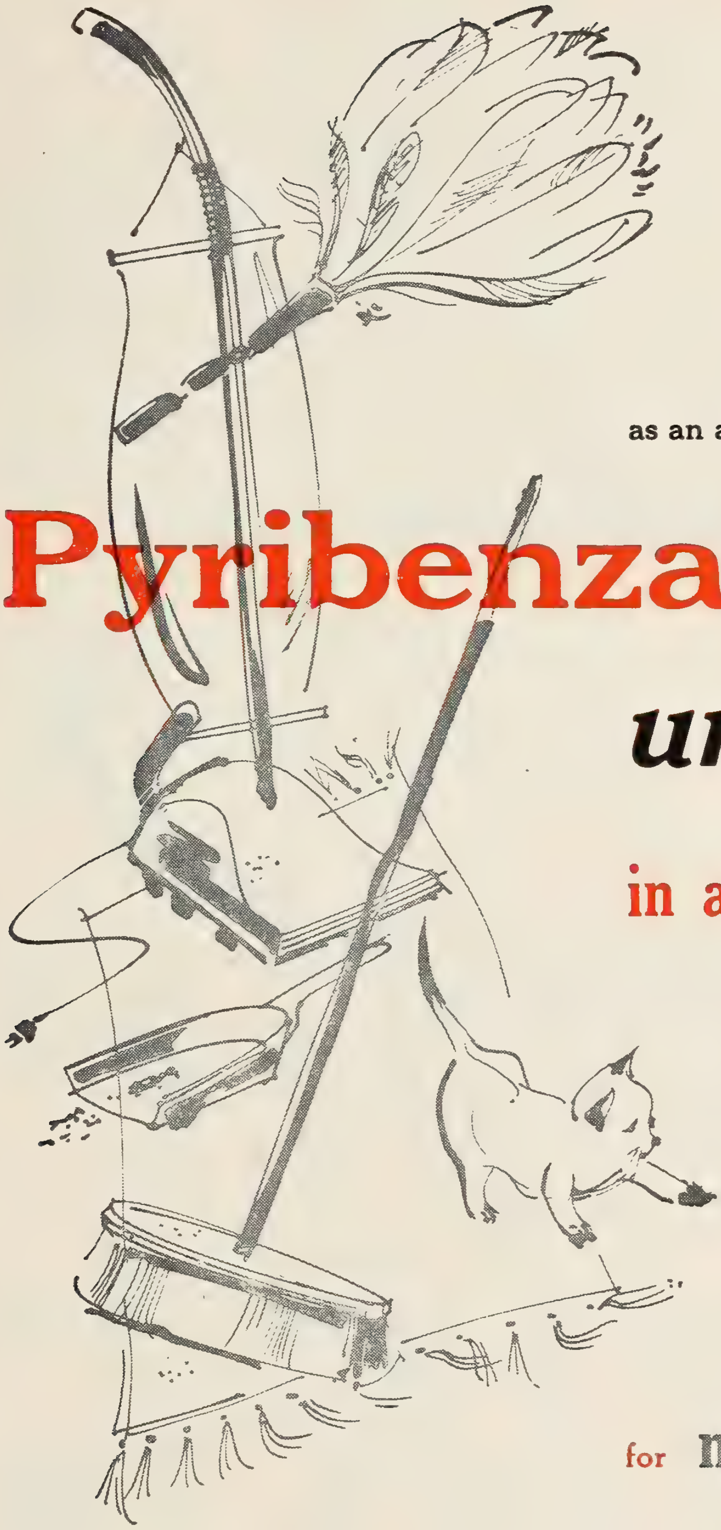

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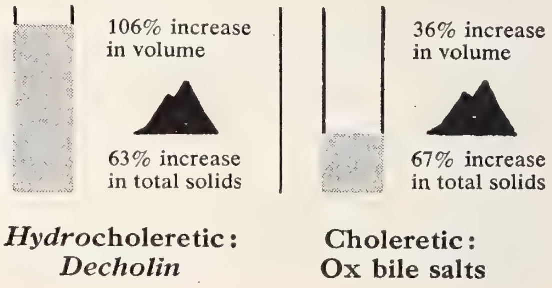

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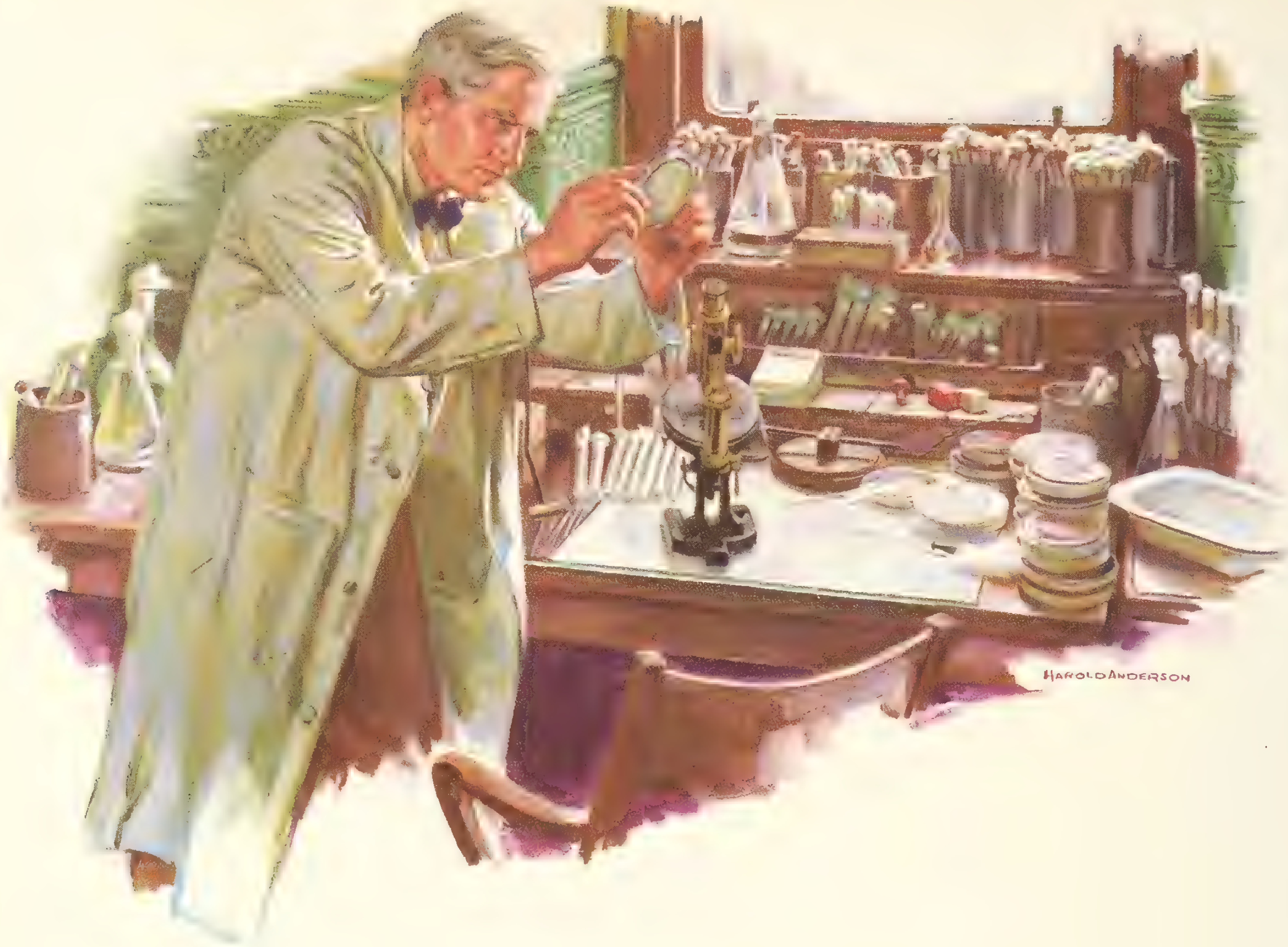

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LUMBAR SYMPATHECTOMY IN THE TREATMENT OF PERIPHERAL ARTERIOSCLEROSIS OBLITERANS

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LUMBAR sympathectomy has been employed with increasing frequency during the past decade in the treatment of peripheral arteriosclerosis obliterans. The rational of this treatment has been well expressed by Freeman, Leeds and Gardner,[7] who stated in 1947 that the "purpose of sympathectomy in the treatment of peripheral vascular disease is manifestly to abolish vasomotor tone in order to allow development of collateral blood vessels." Considerable discussion continues at present, both pro and con the use of sympathectomy in this disorder. Thus a series of cases will be presented in an attempt to add objective data to the accumulated information on this subject.

The pathologic changes occurring in peripheral arteriosclerosis obliterans can be divided into two general categories: (1) the progressive decrease of the size of the lumen of smaller vessels, and (2) the decrease of lumen size of major vessels. In the first group are included vessels the size of the distal femoral artery and all smaller arteries. In the second group are included the aorta, the iliac and proximal portion of the femoral arteries. At the present time the most satisfactory treatment of the first group, the smaller vessels, is sympathectomy, while the latter group of cases can be treated by sympathectomy but also by intimectomy or endarterectomy. Another method of treatment being attempted in the latter group is resection of the diseased segments and replacement by artery grafts. This is applicable where the block is regional and the distal vessels are patent and of good caliber.

At the outset we are faced with a difficult problem, for arteriosclerosis is a generalized disease and the prognosis for survival is limited. Barker[3] has reported that 54.6 per cent of persons treated for peripheral arteriosclerosis obliterans are dead of arteriosclerosis within three years of the time first seen. Pratt[13] states that occlusive vascular disease is the cause of death of 40 per cent of patients over forty years (60 per cent if the heart is included) and that 20 per cent of this group will lose part of or a whole member before death.

In patients with peripheral arteriosclerosis obliterans the effective arterial obstruction represents the sum of the organic obstruction and the constriction from associated vasospasm. The resultant manifestations are those of diminished skin circulation, manifest by lowered temperature, cyanosis, ulcers or gangrene, and those of disminished muscle circulation manifest by intermitten claudication and rest pain. Sudden onset of more severe symptoms in the limb results from thrombosis of diseased vessels. For example, the patient may have sudden severe pain in the calf of the leg which gradually disappears in a few days. This represents thrombosis of one of the small arteries supplying the muscles of the calf. More extensive thrombosis or thrombosis of more critical vessels such as the digital arteries may lead to gangrene.

Some physiologic studies have indicated that sympathectomy increases the circulation of the skin and not that of the muscle.[1,9,17] However, more recent studies indicate that there probably

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is increase of circulation to both skin and to the muscle. After sympathectomy there is a very marked increase of blood flow through the femoral artery. In the dog this amounts to almost twice the normal blood flow. Popoff[12] and others have studied the arteriovenous shunts in the normal limb circulation and feel that there may be danger of releasing the constricting tone on these shunts in a limb with seriously impaired circulation. The added shunting of blood through these arteriovenous channels made patent by sympathectomy could deprive the distal parts of enough blood to cause gangrene. Cases of gangrene following sympathectomy have been reported by Atlas,[4] Freeman[7] and others. These cases have been in patients with low vasomotor tone (i.e., little associated vasospasm) as evidenced by the fact that they showed no response to sympathetic block. Two factors which must be considered in evaluating such post-sympathectomy gangrene are (1) a fall in blood pressure during operation, which would favor the development of thrombosis in the severely compromised vessels, and (2) trauma to the aorta by retractors, with fracture of an arteriosclerotic plaque and plugging of a distal vessel by a fragment of the plaque.

Evidences of arteriosclerosis obliterans obtained by history can be listed as follows: coldness, numbness, paresthesis, pain at rest and intermittent claudication.

Evidences of arteriosclerosis obliterans found upon physical examination are:

1. Color changes:
    Pallor on elevation
    Rubor on dependency
2. Loss of hair
3. Atrophy of the skin and muscles
4. Temperature changes
5. Impairment of sensation
6. Lack of pulsations:
    Dorsal pedal, posterior tibial, popliteal, femoral, aortic
7. Ulcers and gangrene

Further information as to the state of the circulation can be gathered by special tests. The simplest of these is oscillometry, done with an instrument such as the Collens sphygmo-oscillometer. With this instrument, which is read in points of oscillometric index, one obtains indication of the pulsatile blood flow of the limb. Procaine lumbar sympathetic block is perhaps the most valuable test, for it gives a reasonably good evaluation of what can be expected from sympathectomy. Warming of the extremity and relief of pain reveals the presence of considerable vasospasm and indicates that a good result can be expected. However, some patients with arteriosclerosis obliterans will have a good result from sympathectomy in spite of failure to respond to sympathetic block as judged by skin temperature. The response to block is best determined by digital plethysmographic studies.[8] This has been shown to be more accurate than skin temperature studies, for it records the volume of blood and not the temperature of the blood. The temperature of the blood may be considerably lowered in the distal vessels of diseased extremities.

Arteriography is valuable where the disease is localized and can be attacked directly. The procedure, in certain instances, gives valuable information.

Sympathectomy was first undertaken by Leriche[10] in 1917 in spastic arterial disease. His technique was a periarterial sympathectomy, but in 1924 Royle[15] first noted the effect of lumbar sympathectomy on the limb. Brown[5] in 1926 reported the first cases of sympathectomy in Buerger's disease, and in 1932 Brown and Adson[2] published a more extensive study of sympathectomy in this disease.

The prime argument for sympathectomy is the relief of the vasospasm which is associated with arteriosclerosis obliterans. Rector[14] found that 88 per cent of patients with low vasomotor tone developed adequate collateral circulation after arterial occlusion, while in only 34 per cent of those with high vasomotor tone did adequate circulation develop without sympathectomy.

The main criteria for sympathectomy in this disease is the presence of a cold, moist foot having decreased pulses. A good response to sympathetic block is desirable. The foot which is not apt to benefit is the cold, waxy, dry foot with considerable sensory deficit which develops intense cyanosis upon dependency. Likewise, the foot with well-developed gangrene and edema ordinarily responds poorly to sympathectomy. On the other hand it is advisable much of the time to attempt sympathectomy in the doubtful cases, for if amputation is necessary, there may be sufficient improvement of circulation following the operation to allow for local amputation or better healing of a major amputation stump.

The sympathectomized limb is warm and dry;

it warms faster and cools more slowly than the normal limb. It is not affected by reflexes or emotions.

The use of vasodilator drugs such as priscolene, roniacol, paveril phosphate, dihydroergocornine and others, is not as satisfactory as sympathectomy, for their effect is general and thus cannot be of as much benefit to the limb as an operation which promotes local vasodilatation. All patients with obliterative vascular disease should discontinue the use of tobacco if they wish to benefit from any type of treatment.

Technique of Operation

The patient is placed on the operating table supported by rolls so that he lies halfway between the lateral and supine positions. The table is broken and the kidney rest raised. The incision begins at the lateral border of the rectus and extends laterally for 3 inches in a transverse direction at the level of a line drawn from the tip of the twelfth rib through the umbilicus. The external oblique muscle fibers are cut, and the fibers of the internal oblique and transversus abdominus muscles are separated. The transversalis fascia is incised at the posterior angle of the wound in order to prevent entering the peritoneal cavity. The peritoneum is displaced anteriorly, the psoas muscle is exposed and dissection is carried down to the lumbar vertebrae anterior to the psoas muscle. The ureter is displaced with the peritoneum and care should be exercised to avoid injuring this structure. The lumbar sympathetic chain is identified,[11] and the second and third ganglia are removed after division of afferent and efferent rami. Care is taken to avoid injury to lumbar arteries and veins, for bleeding from these vessels can be troublesome. After removal of ganglia and the intervening chain the area is inspected for aberrant sympathetic nerve tissue,[16] hemostasis is assured, and the peritoneum is allowed to fall back in place. Closure of the wound is effected in layers.

In general, we prefer spinal anesthesia, but also use pentothal-curare and local anesthesia. Ether is not used, for it tends to cause vasoconstriction in the diseased extremity.[6] Local anesthesia has proved to be valuable in the poor risk patient and is used either by local infiltration technique or as a nerve block.

The completeness of the sympathectomy can be nicely demonstrated postoperatively by starch-iodine sweating tests. This gives accurate information regarding the extent of denervation accomplished by the sympathectomy.

A group of fifty unselected cases of peripheral arteriosclerosis obliterans has been studied for this presentation. The average age was 56.8 years, the range being from thirty-three to seventy-six years. Thirteen (26 per cent) were diabetics. The presenting symptoms and signs are tabulated as follows:

Symptoms	*No. of Patients*	*Percentage*
Claudication	42	84
Coldness	41	82
Rest pain	40	80
Pallor	39	78
Rubor	38	76
Pregangrene	17	34
Gangrene	9	18

Unilateral sympathectomy was carried out in twenty-nine cases and bilateral sympathectomy in twenty-one cases. Claudication was improved in 64 per cent, coldness was improved in 87 per cent, and rest pain was relieved in 95 per cent.

Results	*No. of Patients*	*Percentage*
Good	37	74
Fair	8	16
Poor	5	10
Group with Gangrene:		
Improved	4	
Major amputation	2	
Toe amputation	3	
Group with Pregangrene:		
Improved	11	
Major amputation	3	
Toe amputation	3	

Of the five poor results, four showed no response to sympathetic block. Two of the four underwent major amputation three months later, one two months later, and one eleven days after sympathectomy.

One patient entered the hospital after an acute popliteal thrombosis. Sympathectomy was done the same day. Seven days later acute popliteal thrombosis developed on the opposite side. Major limb amputations were necessary thirteen and nine days, respectively, after the sympathectomies. The patient developed cerebrovascular thrombosis and died two weeks after the last amputation.

It is felt that the sympathectomy did not hasten the gangrene in this case.

Conclusion

Sympathectomy has had a beneficial effect in improving circulation of extremities imperiled by obliterative arteriosclerosis. It has relieved rest pain, improved intermittent claudication, relieved coldness and dampness. We believe gangrene has been averted in some cases, and in other cases it has allowed amputation at a lower level than could have been undertaken in the unsympathectomized limb and a better stump has been obtained for wearing a prosthesis.

In addition to the group of patients here recorded, sympathectomy has been employed in patients who have had previous amputation for vascular deficiency. The sympathectomy in most cases has been done on the opposite side to protect the remaining extremity which is subjected to additional trauma in walking. In other cases sympathectomy has been carried out on the already amputated side to improve the condition of the stump for use of a prosthesis.

Summary

1. The use of sympathectomy in peripheral arteriosclerosis obliterans has been discussed.

2. Fifty cases of lumbar sympathectomy have been reported and the effect of the operation on the arteriosclerotic extremity has been recorded.

3. The final conclusion of this study is that sympathectomy has proved to be beneficial in the treatment of this disease.

References

1. Abramson, D., and Zaziela, H.: The vasodilating action of various therapeutic procedures. Am. Heart J., 21:756, 1941.
2. Adson, A. W., and Brown, G. E.: Thromboangiitis obliterans; results of sympathectomy. J.A.M.A., 99:529, 1932.
3. Allen, E. V.; Barker, N. W., and Hines, E. A.: Periphereal Vascular Disease. Philadelphia: W. B. Saunders, 1947.
4. Atlas, L. N.: Lumbar sympathectomy in the treatment of peripheral arteriosclerotic disease (gangrene following). Am. Heart J., 23:493, 1942.
5. Brown, G. E.: The treatment of peripheral vascular disturbance of the extremities. J.A.M.A., 87:379, 1926.
6. Felder, D. A.; Linton, R. R.; Todd, D. P., and Baulis, C.: Changes in sympathectomized extremity with anesthesia. Surgery, 29:803, 1951.
7. Freeman, N. E.; Leeds, F. H., and Gardner, R. E.: Sympathectomy for arteriosclerosis obliterans. Ann. Surg., 126:873, 1947
8. Goetz, R. H.: On the measurement of collateral circulation with special reference to the indications for sympathectomy. Angiology, 1:201-228, 1950.
9. Homans, J.: Arterial deficiency in lower extremities. Bull. New England M. Center, 7:4, 1940.
10. Leriche, R.: Communications concerning 800 lumbar ganglionectomies. Med. Research in France during the war—Editions Medical Flammarion.
11. Lowenberg, R. I., and Morton, D. E.: The anatomic and surgical significance of the lumbar sympathetic nervous system. Ann. Surg., 133:525, 1951.
12. Popoff, N. W.: The digital vascular system. Arch. Path., 18:295, 1934.
13. Pratt, G. H.: The present status of sympathectomy in the treatment of vascular disease. Angiology, 1:9-19, 1950.
14. Rector, E. W.: Evaluation of the basal vascular tone test as an indication for sympathectomy in the treatment of surgical lesions of the major arteries. Surgery, 21:630, 1947.
15. Royle, N. D.: The treatment of spastic paralysis by sympathetic ramisection. Surg., Gynec. & Obst., 39:701, 1924.
16. Smithwich, R. H.: Surgery of anatomic nervous system. New England J. Med., 240:543-551, 1949.
17. Stein, J. D.; Harpruder, K., and Beyer, J.: The effect of sympathectomy on blood flow in the human limb. Am. J. Physiol., 152:499, 1948.

DETECTION OF TUBERCULOSIS

The primary responsibility for the detection of tuberculosis rests to a great extent with the practicing physician. He is primarily responsible for the early detection of this disease in those patients who present themselves to him with symptoms and in those patients who present themselves to him for obstetric care. He is also primarily responsible for guidance where tuberculosis is detected in admissions to general hospitals for the treatment of some other condition. In addition to the primary responsibility for the detection of this disease in those patients who are directly under his care, the practicing physician also has a partial responsibility in the diagnosis and detection of tuberculosis in apparently healthy individuals in his community. Public health education on his part can be of tremendous value in the detection of early non-symptomatic tuberculosis. Tuberculosis is a disease of the family and community as well as the individual. The effect upon the social pattern and the physical well-being of the patient and his family is often great, resulting in extensive alteration of the pattern of life.—James M. Blake, M.D., *New York State Journal of Medicine,* February 1, 1952.

HUMAN LEPTOSPIROSIS DUE TO LEPTOSPIRA POMONA

Report of First Case in Minnesota

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ELSEWHERE[12] attention has been called to the difficulty of distinguishing infectious mononucleosis from acute brucellosis. It was pointed out that both of these diseases may display a similar clinical pattern; both may reveal the same hematologic findings, especially with relation to the presence of atypical lymphocytes; and both may exhibit an elevated heterophile antibody titer. The following case report of leptospirosis closely simulated infectious mononucleosis and acute brucellosis in several respects and only as a result of serologic tests was the precise nature of the illness defined. The case is of further interest because it represents the first instance in Minnesota of recognized leptospirosis due to *Leptospira pomona,* or a closely related species.

Many human cases of leptospirosis with and without jaundice have been recognized in the United States as being due to *Leptospira icterohaemorrhagiae* or *Leptospira canicola.* The former as the cause of Weil's disease has its reservoir in rats and the latter in dogs. Although human leptospirosis caused by the species *L. pomona* has been recognized in Australia, Europe and other parts of the world as a common cause of a febrile disease with serous or benign lymphocytic meningitis, very few cases have been reported in the United States. As will be pointed out shortly, this species of leptospira probably has an extensive reservoir in this country, and the disease is very likely being overlooked. Only very recently has evidence been presented by Beeson and his associates[1] from Georgia that human leptospirosis due to *L. pomona* existed in the United States. Shortly thereafter Schaeffer[11] investigated an epidemic of leptospiral meningitis that occurred in Alabama and concluded that 18 of 22 individuals had serologic evidence of an infection due to *L. pomona.* And more recently Coffey and his group[3] in Texas have reported an instance of leptospirosis probably due to this species.

My interest in the possibilities of this type of leptospirosis existing in Minnesota was stimulated by the foregoing reports and also by personal observations made in Europe during the summer of 1951. Many patients with leptospiral meningitis due to *L. pomona* were seen in the Fever Hospital at Rijeka (Fiume), Yugoslavia, with the Director, Dr. H. Rukavina. The cases represented young adults from rural areas who had had contact with the reservoir in swine. For this reason, the disease is commonly known as "swineherd's disease" or "maladies des porchers." Then an opportunity presented itself to spend several days in Switzerland with Dr. O. Gsell, who has had an extensive clinical experience with leptospirosis, especially with cases due to *L. pomona.* His observations have just been documented in an excellent monograph on leptospirosis.[7]

Case Report

C. D., twenty-three years old, a single white man, was employed in a meat-packing plant and was first seen on February 13, 1952. He had been in good health until February 8. While at work he "felt uneasy" with pains in the back, shoulders, arms and joints. Toward evening he developed chills, fever, weakness and profuse sweats. During the night and the following day he acquired a severe headache. His temperature was 104° F. He became anorexic, which was associated with abdominal cramps and vomiting. Insomnia appeared. The severe headaches, fever, anorexia and weakness persisted until February 12. On February 13, or on the sixth day of his illness, his temperature was normal, but he felt weak and he had lost 10 pounds in weight during this period. Upon further interrogation he stated that he had always enjoyed good health. In recent years he had served three years in the Air Force without being ill. Coincident with the patient's illness his father was at home with a "virus pneumonia." The patient had been working in a meat-packing plant for four years doing odd jobs around the hog kill. For the six months prior to his present illness he had been removing the intestines from freshly killed hogs.

Physical examination revealed a well developed and well nourished young male who appeared ill. His temperature was 97.4 F., pulse, 76, and blood pressure, 115/60. His skin was dry. There was no evidence of icterus. There was no rigidity of the neck. The only abnormal finding was a moderate enlargement of the lymph nodes in both axillae, which were slightly tender on palpation. The spleen was not palpable.

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TABLE I. AGGLUTININ TITER OF ACUTE AND CONVALESCENT SERA FROM PATIENT AGAINST THREE SPECIES OF LEPTOSPIRA.

Date Serum Obtained from Patient	Day of Disease	Titer of Agglutinins		
		L. ictero	L. canicola	L. pomona
2-13-52	6	0	1:116	0
2-15-52	8 (meningitis)	0	1:256 (incomplete)	1:128 (complete)
2-23-52	16	1:128 (incomplete)	1:1024 (incomplete)	1:4000 (complete)
3-8-52	30	1:128 (incomplete)	1:512 (incomplete)	1:2000 (complete)
3-30-52	52	1:64	1:128	1:2048

TABLE II. RESULTS OF LIVER FUNCTION TESTS ON PATIENT'S SERA

Date of Serum	Day of Illness	Cephalin Flocculation	Zinc Turbidity (Normal 0 to 3 units)
2-15-52	8	3÷	4
2-23-52	16	2÷	12
3-8-52	30	3÷	9

The results of laboratory procedures performed on February 13, or the sixth day of his illness, were as follows: Urine—slightly cloudy and amber in appearance; specific gravity, 1.026; 1+ albumin; sediment showed 3 to 4 leukocytes, 6 to 8 erythrocytes, and 1 cellular cast per high power field. Blood—hemoglobin, 14.1 grams; 7,450 leukocytes with 48% neutrophiles, 33% lymphocytes, 15% monocytes, 1% eosinophiles, 2% basophiles and 1% plasma cells. The erythrocyte sedimentation rate (Westergren) was 41 mm. in one hour. Agglutinins for brucella were present in a titer of 1 to 40. The heterophil antibody titer was 1 to 112, and 1 to 56 after absorption of the serum with guinea pig kidney. A culture of blood for brucella remained sterile. A serologic test for syphilis was negative.

The impression after this initial examination was that the patient had acute brucellosis. Previous experience with employes from the hog kill of the same packing plant had presented the same epidemiologic information with a similar clinical picture and the diagnosis had been proved bacteriologically in several cases. Since we have become more cognizant of the similarity in the clinical, hematologic and serologic findings in patients with infectious mononucleosis and brucellosis, serologic studies for both diseases were carried out, and a blood film was reviewed by Dr. Dorothy Sundberg. She remarked that the neutrophils appeared toxic and contained Döhle bodies. Many of the lymphocytes showed leukocytoid alterations, most of which could be classified as Type I lymphocytes of Downey. The hematologic picture was compatible with either brucellosis or infectious mononucleosis. Because the patient was afebrile he was referred back to his physician, Dr. D. L. Donovan of Albert Lea, Minnesota, for further observation.

Within forty-eight hours the patient had a recurrence of fever and headache, and evidence of meningitis was established by Dr. Donovan on February 15, which was the eighth day of illness. At this time laboratory data revealed the following: urine was normal. The hemoglobin was 12.6 grams; the leukocyte count was 8100 with 59% neutrophiles, 34% lymphocytes and 7% monocytes. Brucella agglutinins were still present in a titer of 1 to 40, and the heterophil antibody titer was 1 to 112. A lumbar puncture was carried out. The cerebrospinal fluid was under normal pressure. There were 92 cells present, all of which were lymphocytes. The protein was 22 mgs. per cent, and the sugar 62 mgs. per cent. While the clinical picture was still compatible with acute brucellosis or infectious mononucleosis, the possibility of leptospirosis due to *L. pomona* was now entertained. Shortly after this episode of meningeal irritation the patient recovered and returned to work. Two months later, when this report was prepared, he was in good health.

Through the co-operation of Dr. Martin Frobisher, Jr., and Dr. Martha K. Ward of the Communicable Disease Center of the U. S. Public Health Service, Chamblee, Georgia, several specimens of sera were examined serologically for leptospirosis. The results are presented in Table I. Agglutinins were demonstrated for *L. icterohaemorrhagiae, L. canicola* and *L. pomona*, but not for *L. grippo typhosa* or *L. bataviae*. In submitting this report of the results Dr. Ward stated, "Although the titers vs. the *L. canicola* antigen were higher than *L. pomona* in the two early sera, the later much higher rise in titer vs. *L. pomona* and also the much more complete agglutination of this antigen would indicate an infection with *L. pomona* or closely related type." It is also to be noted in Table I that a high titer for *L. pomona* persisted, whereas the titers for the other two species had decreased to much lower levels.

Agglutination tests for brucella performed with each of the specimens of serum showed a titer of 1 to 40. This indicated probably exposure to the disease in the past rather than active brucellosis, a conclusion based upon other observations carried out in this clinic.[10,13] Although the patient was not icteric and displayed no other clinical evidence of hepatic dysfunction, two tests for liver function gave abnormal results with the patient's sera as shown in Table II.

Discussion

While it is now known that several different species of leptospira may cause human disease, only the three species, *L. icterohaemorrhagiae, L. canicola* and *L. pomona* have thus far been implicated in the United States. A recent communication indicates that so-called Fort Bragg fever thought to be of viral origin is due to another species of leptospira, *Leptospira autumnalis,* known to be a cause of human leptospirosis, but not previously associated with disease in this country.[5] Because there is evidence that infections due to *L. pomona* will assume increasing attention in this country brief reference will be made to some of the epidemiologic and clinical features of disease due to this species. The original strain of *L. pomona* was isolated from the blood of a dairy farmer who had a mild type of febrile illness and who lived in Pomona, which is a community just north of Brisbane, Australia.[2] Within the next five years 80 human cases were recognized in this area.[4] Agglutinins for *L. pomona* were also demonstrated in the sera of cattle and hogs, and the organism was isolated from a hog.[9] The same species was next isolated in Italy, and in 1944 and 1945 Gsell proved that the disease known since 1933 in Switzerland, Savoy and Northern Italy as "maladie des porchers" or swineherd's disease was caused by *L. pomona.*[14] Gsell[7] also established that the reservoir of the disease was in hogs, and but rarely in the dog or cat. Some interesting observations have been made in the United States relative to the reservoir of *L. pomona.* There is a baffling disease of horses known as recurrent iridocyclitis or periodic ophthalmia. Heusser[8] in Europe found a high incidence of leptospiral agglutinins for *L. pomona* in afflicted horses as compared to the low number in normal horses. While the organism remains to be isolated the serologic observations of Heusser in horses have been confirmed in the United States by the group in the Veterinary Division of the Army Medical Department of Research.[15] Another provocative epidemiologic feature arising in this country is the finding that isolated strains of bovine leptospira known as New Jersey C164 and New York A are indistinguishable from *L. pomona.*[6] That *L. pomona* is probably endemic in domestic animals in this country is reflected in a recent report that I received from Dr. R. V. Johnston of Indiana. His group in co-operation with the Veterinary Division of the Army Medical School has isolated and identified a strain of *L. pomona* from swine in Ohio. On the farm from which this strain was acquired, the following results of serologic tests were obtained: agglutinins for *L. pomona* were present in 53% of 52 hogs, in 80% of 18 cattle, in 100% of 2 horses, 0% of 2 dogs and 0% of 2 rats. It is to be recalled that following the human epidemic in Alabama, Schaeffer[11] observed agglutinins for *L. pomona* in hogs, horses and mules, but an extensive rat survey failed to yield either cultures or agglutinins for *L. pomona.* A recent communication from Dr. Charles J. York of the Veterinary Virus Research Institute of the New York State Veterinary College, Ithaca, New York, stated that the distribution of *L. pomona* in swine and cattle is probably very widespread in the United States.

Except for the possible ocular lesions in horses and the disease in swine little is known concerning the manifestations of the disease in animals. According to Gsell,[7] infected pigs display gastro-intestinal disturbances with anorexia; they turn round and round, and manifest inability to stand up; and then rigidity and spasm appear. The disease seldom results in death, and lasts about two weeks or less.

Gsell[7] has detailed the manifestations of the human disease in 217 cases, but only the essential features will be presented here. In the Swiss cases, over 90 per cent of the cases occurred in males, and the age incidence was between 20 and 29 years. The disease has a prodromata of one to two days of malaise and headache, and then there is the abrupt onset of chills, fever, weakness to a point of physical collapse, and severe headache. A high fever of the plateau type lasts for three to six days and then there is a remission for one to two days followed by a second rise of temperature for a few days, and then recovery. In about 60 per cent of the cases, conjunctivitis appeared during the first rise of fever. Meningismus appears during the first peak of fever, but the signs of meningitis are particularly prominent during the second rise. Icterus is extremely rare. In about 10 per cent of the cases there was a skin eruption consisting of morbilliform and urticarial lesions, and restricted to the trunk. Renal irritation is manifested by the temporary presence of albuminuria and occasional erythrocytes and leukocytes. There is a tendency to leukopenia with neutrophilia during the first week, and a normal leukocyte count with relative lymphocytosis during the second week. The erythrocyte sedimentation rate is elevated, and the serum proteins show an elevation of globulins. During the first peak of fever, or phase I of the disease, the cerebrospinal fluid shows only an elevated pressure, but during the second rise, or phase II, there may be 50 to 200 cells. At first there is an equal cellular distribution between lymphocytes and neutrophiles, followed by a predominance of lymphocytes. The protein value of the spinal fluid is 40 to 80 mgs. with normal values for glucose and chlorides. Leptospira can be cultured from the cerebrospinal fluid during the first febrile phase, but not during the second phase. The diagnosis is established by isolation of *L. pomona* from the blood, cerebrospinal fluid or urine during the first week of illness. During the second week, greater reliance must be placed upon the agglutination titer. Gsell is of the opinion that the titer should be at least 1 to 400. Cross reactions do occur with the other species, especially *L. icterohaemorrhagiae* and *L. canicola,* though usually at a lower titer, and these antigens are usually incompletely agglutinated by the serum. Agglutinins also appear in the cerebrospinal fluid, though at a lower titer than found in blood. Fortunately, complications are rare. Iridocyclitis that may be delayed four to 12 months after illness may appear, and in Gsell's cases, this occurred in about 5 per cent of the cases. A post-infectious asthenia may persist in some cases. Recurrence of the disease is a rarity. Gsell[7] found that both aureomycin and terramycin were quite effective therapeutically during the first stage of the disease, but not during the second stage. The administration of 2 grams of either antibiotic daily for four to five days resulted in prompt improvement and prevented the second rise in fever.

From a review of the literature, and as a result of limited observations made in this country, it is apparent that the animal reservoir of *L. pomona* may be much more widespread than has been realized, and that leptospirosis caused by this species may occur quite frequently. The disease should be considered in those individuals with an unexplained febrile condition whose occupation brings them in close contact with farm animals. The possibility of leptospirosis should be entertained in every case of benign lymphocytic meningitis, and serum should be collected for serologic evaluation during the acute and convalescent stages of the illness. Since iridocyclitis is an occasional late complication, agglutinins for *L. pomona* should be carried out on the serum of patients having this condition. Other diseases from which cases of *L. pomona* should be differentiated include Q fever, brucellosis, infectious mononucleosis, and lymphocytic meningitis associated with mumps and the virus of lymphocytic choriomeningitis.

Summary

1. A young adult male employed on the hog kill of a meat-packing plant presented himself with an acute febrile illness that simulated acute brucellosis and infectious mononucleosis. Serologic studies demonstrated that the illness was due to *Leptospira pomona,* or a closely related species. This represents the first recognized case in Minnesota.

2. The reservoir of *L. pomona* is in cattle and swine, and the disease may be quite widespread in these animal species in the United States. The disease should be suspected in humans with an acute febrile disease associated with lymphocytic meningitis, especially in those having had contact with cattle or swine. The disease is of short duration; the prognosis good; and aureomycin or terramycin are effective therapeutic agents.

Bibliography

1. Beeson, P. B.; Hankey, D. H., and Cooper, C. F., Jr.: Leptospiral iridocyclitis: evidence of human infection with *Leptospira pomona* in the United States. J.A.M.A., 145:229, 1951.
2. Clayton, G. E. B., and Derrick, E. H.: The presence of leptospirosis of a mild type (seven-day fever) in Queensland. M. J. Australia, 1:647, 1937.
3. Coffey, J. H., Dravin, I., and Dine, W. C.: Swineherd's disease (aseptic meningitis) due to *L. pomona.* J.A.M.A., 147:949 (Nov.) 1951.
4. Derrick, E. H.: *Leptospira pomona.* M. J. Australia, 1:431, 1942.
5. Gochenour, Jr., W. S.; Smadel, J. E.; Jackson, E. B.; Evans, L. B., and Yager, R. H.: Federation Proc., 11:469, 1952.
6. Gochenour, Jr., W. S.; Yager, R. H., and Wetmore, P. W.: Antigenic similarity of bovine strains of *Leptospirae* (United States) and *Leptospira pomona.* Proc. Soc. Exper. Biol. & Med., 74:199, 1950.
7. Gsell, O.: Leptospirosen. Bern, Switzerland: Medizinischer Verlag Hans Huber, 1952.
8. Heusser, H.: Die periodische Augenentizündung eine Leptosperose. Schweiz. Arch. Tierheilk, 90:288, 1948.
9. Johnson, D. W.: The discovery of a fifth Australian type of leptospirosis. M. J. Australia, 1:431, 1942.
10. Magoffin, R. L.; Kabler, P.; Spink, W. W., and Fleming, D.: An epidemiologic study of brucellosis in Minnesota. Pub. Health Rep., 64:1021, 1949.
11. Schaeffer, M.: Leptospiral meningitis: investigation of a water-borne epidemic due to *L. pomona.* J. Clin. Invest., 30:670, 1951.
12. Spink, W. W., and Anderson, D.: Studies relating to the differential diagnosis of brucellosis and infectious mononucleosis. Clinical, hematologic, and serologic observations. Tr. A. Am. Physicians, 64:428, 1951.
13. Spink, W. W., and Anderson, D.: Brucella studies on bank blood in a general hospital. J. Lab. & Clin. Med., 35:440, 1950.
14. Van Thiel, P. H.: The leptospiroses. p. 155. Leiden: Universitaire pers Leiden, 1948.
15. Yager, R. H.; Gochenour, Jr., W. S., and Wetmore, P. W.: Recurrent iridocyclitis (periodic ophthalmia) of horses. I. Agglutination and lysis of leptospiras by serums deriving from horses affected with recurrent iridocyclitis. J. Am. Vet. Med. A., 117:207, 1950.

BLOOD GROUP FACTORS

Part I. Inheritance of the Blood Group Antigens

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IN THE past decade there has been a tremendous expansion of knowledge and stimulation of interest in the human blood groups. Initiated by the discovery of the Rh factor, this recent interest has been sustained both by the demand for safer transfusions and by the hope of finding a better understanding of the cause and treatment of hemolytic disease of the newborn. The large mass of rapidly accumulating data on the newly found blood groups is in the fields of genetics and immunology, which ordinarily are outside the training and experience of most physicians. It seems desirable therefore to review and bring together in a brief paper the essential data and interpretations in these subjects so that physicians can have them available for ready reference.

Genetic Terminology

Blood group antigens are hereditary and an understanding of a few of the geneticist's terms is indispensable in any study of these blood factors. "Chromosomes" are familiar to physicians as the rod-like bodies seen in the nucleus of cells undergoing mitosis. The chromosomes carry the determiners of individual inherited characteristics. A chromosome can be thought of as a string of beads in which each bead represents a "gene," the basic hereditary unit of the chromosome. Each gene is arranged in a linear order on the chromosome and each has its own specific position on the chromosome and this position is known as its "locus." Since, during the maturation of the spermatozoa and ova, chromosomes divide along a longitudinal plane, each gene must be paired in order to be properly represented in each half of the divided chromosome. In the matured spermatozoa and ova of the human, there are twenty-four single chromosomes which at fertilization combine to make up the twenty-four pairs of homologous chromosomes found in the nuclei of the somatic cells of the human body. Each hereditary blood antigen, therefore, is represented by a pair of genes standing side by side in a specific location (locus) on the chromosome. Genetically each blood group antigen behaves as a unit and is inherited as such. Serological tests for the specific blood group antigens are therefore indirect tests for the presence of specific genes.

TABLE I. BLOOD GROUP SYSTEMS

SYSTEM	LOCI	ALLELOMORPHS
ABO	1	A^1, A^2, B, O
Rh	3	1-C, C^w, C^u, c, c^v
		2-D, D^u, d
		3-E, e
MNS	1	M, N, S, s
Kell	1	K, k
P	1	P, (p, postulated)
Lutheran	1	Lu^a, (Lu^b, postulated)
Lewis	1	Le^a, Le^b
Duffy	1	Fy^a, (Fy^b, postulated)
Kidd	1	Jk^a, (Jk^b, postulated)
FAMILY TYPES		
Levay	1	Levay +, Levay —
Graydon	1	Gr +, Gr —
Jobbins	1	Jobbins +, Jobbins —

Genes sometimes undergo mutation. This involves some qualitative or quantiative change in one member of a pair of genes located on a chromosome pair. The new variant thus formed is known as an "allele" or "allelomorph." Some genes have developed many ("multiple") allelomorphs. Only one pair of allelomorphs can occur at one locus but if there are multiple alleles any two of these can make up the pair. These two allelomorphs made up of any possible combination is the specific "genotype" of that individual for that one blood group. If the two allelomorphs in the pair are identical the genotype is "homozygous." If the two allelomorphs are different, the genotype is spoken of as "heterozygous."

Blood Group Systems

All of the allelomorphs of any one blood group gene are carried on one chromosome and this family of alleles is known as a blood group "system." Each of the blood group systems is carried on a different chromosome. Two systems do not appear in one chromosome.

Table I lists the important blood group systems.

Most of these systems can be involved in transfusion reactions or erythroblastosis; in fact, many of the newer blood groups have been identified

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through study of reactions or maternal sensitization. The ABO system identified by Landsteiner[10] in 1900 is by far the most important and has served as the basis for all transfusion work for the past fifty years. The system, like that of most of the blood groups, is carried within one gene. There are 4 common allelomorphs within the ABO system known as A_1, A_2, B and O. The genotypes possible from these four allelomorphs are expressed as ten allelomorphic pairs, A_1A_1, A_1A_2, A_2A_2, A_1B, A_2B, A_1O, A_2O, BB, BO, OO. Of these, A_1A_1, A_2A_2, BB and OO are homozygous whereas the others are heterozygous. Two more allelomorphs known as A_3 and A_4 have been described but these are rare. It is customary in ordinary routine transfusion work to refer to the four blood groups only as O, A, B and AB. It sometimes happens that an A individual of one subgroup becomes sensitized by transfusion to the other subgroup of A. In such cases it is important that blood of the homologous A subgroup be used for transfusion. In paternity exclusion studies it is often important to test for subtypes of A and in genetics and heredity studies the full genotype formula is conscientiously sought.

The M substance of the MNSs system was first described by Landsteiner and Levine[11] in 1927 and since that time the four allelomorphs MNSs have been identified.[12,26,27] Numerous examples of sensitization to these factors have been observed.[1,7,19,28] Race and Sanger,[25] for example, identified 9 instances of M sensitization in their own work.

The P factor was also identified in 1927 by Landsteiner and Levine.[12] Sensitization to the P substance may be quite common but if so, the antibodies formed are weak and usually the reactions are not severe enough to cause clinically apparent reactions.

In 1946, the Lutheran,[2] Kell[3] and Lewis[20] factors were described. In 1950, the Duffy factor[4,5] was added and more recently the Kidd factor[21] was discovered. Each of these blood substances has been named for the patient originally studied.

The Kell-positive factor is indicated by K and the Kell-negative as k. However, the terms in case of the Lutheran, Lewis, Duffy and Kidd factors do not follow this pattern. By the time these factors were discovered, the difficulties and confusion resulting from prior methods of terminology were already apparent. If K were used for Kell it could not be used for Kidd; if L were used for Lutheran, it could not be used for Lewis. D or D^u already used for allelomorphs in the Rh system, could not be used for Duffy. Therefore, the terms as given in the table were adopted. Furthermore, the terms "large D" and "little d" are distinctly cumbersome and in the more recently discovered blood factors, the use of superscript "a" for one allele, and superscript "b" for the next identified has been started. This system permits the labeling of other alleles as c, d, e, and so on if such should be identified in the future. This indicates the tendency to discard the terms "positive" and "negative." Perhaps soon there will be a standardization of all the terms used in this field.

Each year is producing more evidence that these factors are occasional causes of significant transfusion reactions or of erythroblastosis. The frequency of sensitization, however, is small and these factors need not be routinely investigated in ordinary transfusion work. However, these blood factors and the newer Rh allelomorphs must be investigated in cases of unexplained reactions to blood or in cases of erythroblastosis not identified with the usual antigenic incompatibilities.

The so-called "family" type of blood factors—the Levay,[2] Graydon,[9] Jobbins[8] and others—are of little clinical importance. Here again the blood antigens were named for the patients in whom the factors were discovered, or the investigator. These rare blood factors appear only in members of the particular family group and not in unrelated individuals. They are of interest primarily because they are mutations having a strikingly narrow distribution in the population. These blood factors have caused sensitization but only in isolated instances.

More recently Levine et al[14] have described another blood group factor, Jay, which was present in certain tumor cells. Their unexpected findings led them to the conclusion that a blood factor in tumor cells may arise from a genetic mutation.

The Rh-Hr System

Discovery of the Rh system of blood factors unquestionably has been the greatest contribution to blood transfusion knowledge since the identification of the ABO system by Landsteiner at the turn of the century. The system, unfortunately, is very complex because it is carried on three separate genes and these have undergone considerable mutation with the production of many allelomorphs.

The allelomorph which we now know as $R(Rh_0)$ was the first one discovered.[13,15] At the time of these first studies there was no conception of the complexity of the system. It was thought that this factor was present in certain individuals and these people were therefore called Rh positive. Those individuals in whom the element was absent were called rh negative. Soon it became apparent that this was only a partial truth. It was realized that while the rh negative person did not have the Rh factor, he did have in its stead a factor which, because it occurred on the red blood cells reciprocally when Rh was absent, came to be known as the Hr factor.[16] It quickly became apparent that there must be at least three Rh-Hr combinations.[17,22,23,24] Fisher[6] quite sensibly named the three new factors C, D, and E, following up the A and B terminology selected by Landsteiner. The three Rh "positive" factors are now known by the large letters C, D, and E. The corresponding reciprocal Hr or rh "negative" factors are designated by the small letters c, d, and e. The three Rh-Hr or as commonly stated now the C-c, D-d, and E-e factors are each represented by a pair of genes occurring at adjacent but different loci on the chromosome. The C-c and D-d genes are known to have undergone further mutation with the production of other allelomorphs.

Table I lists the three genes of the Rh system and the known allelomorphs of each. The number of the Rh genotypes possible from this large number of allelomorphs is very great. Even without considering the recently discovered allelomorphs, C^w, C^u, c^v and D^u, there are 78 genotypes. The genotype is complex because all three loci in each of the paired genes must be expressed. In a single locus system like the ABO, the genotype is represented by only one letter for each member of the pair of genes, i.e., A/A, A/B, or A/O, etc. But in case of the Rh system which is a three locus system the genotype includes three letters on each side, i.e., CDE/CDE.

The various combinations of allelomorphs forming the genotypes do not occur in even proportions. Only a few occur frequently and the great majority are rare.

Table II lists twelve of the Rh groups defined by the four anti-sera Anti-C-c-D-E.

TABLE II. RESULTS OF TESTS OF BLOOD FROM AMERICAN WHITES[18]. 335 RANDOM SAMPLES

Genotypes	Percentage
Common	
CDe/cde	30.76
CDe/CDe	19.09
cDE/cde	16.72
CDe/cdE	14.63
cde/cde	14.03
Rare	
cDe/cde	2.69
cdE/cde	1.19
Cde/cde	0.87
Cde/cdE	0.00
Cde/Cde	0.00
CDe/CDE	0.00
CdE/Cde	0.00

The results shown in Table II indicate that the Rh groups Cde/cdE, Cde/Cde, CDe/CDE, and CdE/Cde are rare in American white people, not having been found in the 335 which were studied by Levine at random. In this study, the anti-C serum used contained also anti-C^w. The more recently discovered allelomorphs C^u, D^u and c^v were not identified in this study. Antisera against the allelomorph d is not yet available commercially and for the time being the presence of the d antigen when it occurs with D cannot be determined directly and therefore must be arrived at through family studies or must necessarily be presumptive based on the statistical probability as given in Table II. By the method of calculating from known gene frequencies, there is less than a 6 per cent error in distinguishing the homozygous -D-/-D- from the heterozygous -D-/-d-.

The common usage of terms is illustrated as follows: The Rh genotype CDE/CDE is Rh positive for all three specificities and is homozygous. The genotype CDE/cde is Rh positive for all specificities and is heterozygous for all. Taking the three most common genotypes (Table II), as examples, CDe/cde is Rh positive for C and D and rh negative for E and is heterozygous except for e. CDe/CDe/ is the same except this pattern is homozygous throughout. cde/cde is rh negative for all three specificities and is homozygous.

The Rh serum recommended for routine obstetrical work for screening positive and negative patients is the anti-D serum. Individuals negative to this serum are -d-/-d- and reference to

Table II shows that their complete genotype is likely to be cde/cde. It must be pointed out that 2 per cent of these individuals negative to anti-D serum will be positive to C or E. The significance of this in transfusion work will be discussed in Part II.

TABLE III.
EQUIVALENT
NOMENCLATURE
OF Rh SYSTEM

Weiner Method	Fisher Method
Rh$_0$	D
rh′	C
rh″	E
rh′ rh″	CE
Rh$_1$	CD
Rh$_2$	DE
Rh$_1$, Rh$_2$	CDE
Hr$_0$	d
hr′	c
hr″	e

As will be discussed later, determination of the father's genotype is of help to the physician. The frequency of genotypes listed in Table II applies to males as well as females. From the table, it can be seen that the heterozygous combination -D-/cde occurs in approximately 45 per cent of all Rh positive white population. When the husbands of rh negative women are heterozygous (i.e., they carry the rh negative factor) then on the average 50 per cent of their offspring will be rh negative. The genotype -D-/-D- occurs in about 35 per cent of all Rh positive fathers. These men are homozygous to the D factor and all of their children will be (D) Rh positive.

The Fisher CDE system of nomenclature is not universally accepted. Weiner prefers a system which he has devised and in America this is used to some extent. The system probably is of value to some individuals but in general, clinicians find it rather cumbersome. The equivalent terms in the Weiner and Fisher system of nomenclature are given in Table III.

Summary

Blood cells possess specific inherited characteristics. These characteristics have undergone mutations so that some of the characteristics now are represented by a sizable family of variants. A specific blood cell characteristic and its variants is known as a blood group system. The two most important systems are the ABO and the Rh-Hr systems. The MN, Kell, Duffy, Lutheran, Lewis and Kidd factors are other blood group systems.

The ABO system is a simple one located within one gene. There are three major variants or allelomorphs and these three form the basis for the division of blood into the four major blood groups: AB, A, B and O.

The Rh system is much more complex because it is carried on three genes. It is recommended that the three genes be called C, D, and E, which can be conveniently spoken of as the three specificities of the Rh factor. Each gene has two major variants or allelomorphs designated as C and c, D and d, and E and e. The allelomorphs which are known as Rh positive are expressed by the large letters, C, D, and E. The allelomorphs which are called rh negative are expressed by the small letters, c, d, and e. Other allelomorphs have been discovered and these have been called C^w, C^u, c^v and D^u. These newer allelomorphs in the Rh system and other recently discovered blood factors such as Kell, Lutheran, Lewis, Duffy, Kidd are occasionally implicated as the cause of transfusion reactions or of erythroblastosis.

Since genes necessarily must be paired (in order to provide equal representations in each half of the dividing chromosome of the ovum and sperm), the complete Rh pattern or genotype is represented by six letters, for example, CDe/cde. In this example the individual is Rh positive to the C and D specificity and is rh negative to the E. He is heterozygous to the C and D and is homozygous to the e.

The commonly used Rh serum is anti-D serum. Therefore, the individual who is rh negative to this serum is -d-/-d- and from the table of frequencies it can be seen that most often the complete genotype must be cde/cde. However, in about 2 per cent of the white population blood negative to anti-D serum (-d-/-d-) can be positive to the C or E or both. The significance of this will be discussed in Part II of this paper.

The designations of genotypes by various modifications of the term Rh such as Rh$_o$, rh′ rh″, R$_1$, et cetera, seem to be too cumbersome for clinical use.

(Part II, Rh Sensitization, will appear in the July number.)

References

1. Broman, B.: The blood factor Rh in Man. Acta paediatrica Supplementum II: 128, 1944.

2. Callendar, Sheila T., and Race, R. R.: A serological and genetical study of multiple antibodies formed in response to blood transfusion by a patient lupus erythematosus diffusus. Ann. Eugen., London, 13:102-117, 1946.
3. Coombs, R. R. A., Mourant, A. E., and Race, R. R.: In-vivo isosensitization of red cells in babies with haemolytic disease. Lancet, *i*, 264-266, 1946.
4. Cutbush, Marie, and Mollison, P. L., and Parkin, Dorothy M.: A new human blood group. Nature, 165:188, 1950.
5. Cutbush, Marie, and Mollison, P. L.: The Duffy blood group. Heredity, 4:383, 1950.
6. Fischer, R. A., cited by Race, R. R.: An incomplete antibody in human serum. Nature, London, 153:771-772, 1944.
7. Friedenreich, V.: Ueber das Vorkomen von Isoagglutinin Anti-M. Ztschr. f. Immunitats., 91:485-493, 1937.
8. Gilbey, B. E.: A new blood group antigen. Jobbins. Nature, London, 160:362, 1947.
9. Graydon, J. J.: A rare isohemagglutinogen. Am. J. Austral., 2:9, 1946.
10. Landsteiner, K.: Zur Kenntnis der antifermentapiven, lytischen und agglutinierenden Wirkungen des Blutserums und der Lymphe. Zbl. Bakt., 27:357-362, 1900.
11. Landsteiner, K., and Levine, P.: A new agglutinable factor differentiating individual human bloods. Proc. Soc. Exp. Biol. N. Y., 24:600-602, 1927.
12. Landsteiner, K., and Levine, P.: Further observations on individual differences of human blood. Proc. Soc. Exp. Biol. N. Y., 24:941-942, 1927.
13. Landsteiner, K., and Weiner, A. S.: An agglutinable factor in human blood recognized by immune sera for Rhesus blood. Proc. Soc. Exp. Biol. N. Y., 43:223, 1940.
14. Levine, Phillip; Bobbitt, B. B.; Waller, R. K., and Kuhmichel, A.: Isoimmunization by a new blood factor in tumor cells. Proc. Soc. Exp. Biol. & Med., 27:403-405, 1951.
15. Levine, P., and Stetson, R. E.: An unusual case of intra-group agglutination. J.A.M.A., 1913:126-127, 1939.
16. Levine, P., and Pollayes, S. H.: An atypical hemolysin in pregnancy. Ann. Int. Med., 14:1903, 1941.
17. Levine, P.; Burnham, L.; Katzin, E. M., and Vogel, P.: The role of isoimmunization in the pathogenesis of erythroblastosis fetalis. Am. J. Obst. & Gynec., 42:925-937, 1941.
18. Levine, P.: Anti-Hr sera. Nature, London, 156: 418-419, 1945.
19. Moureau, P., and Lambert, J.: Presence d' Isoagglutinine Anti-M dans Unsang Humain. Compte. r. Soc. Biol. Paris, 131:148-149, 1939.
20. Mourant, A. E.: A "new" human blood group antigen of frequent occurrence. Nature, London, 158: 237, 1946.
21. Race, R. R.; Sanger, Ruth; Allen, F. H., Jr.; Diamond, L. K., and Niedziela, Beverly: Inheritance of the human blood group antigen Jka. Nature, 168:207, 1951.
22. Race, R. R., and Taylor, G. L.: A serum that discloses the genotype of some Rh positive people. Nature, London, 152:300, 1943.
23. Race, R. R.; Taylor, G. L.; Borrman, Kathleen E., and Dodd, Barbara E.: Recognition of Rh genotype in man. Nature, London, 152:563, 1943.
24. Race, R. R.; Taylor, G. L.; Cappell, D. F., and McFarlane, Marjorie N.: Recognition of further common Rh genotypes in man. Nature, London, 153: 52, 1944.
25. Race, R. R., and Sanger, Ruth: Blood Groups in Man. 1st Ed., p. 57, 1950.
26. Sanger, Ruth, and Race, R. R.: Subdivisions of the MN blood groups in man. Nature, London, 160:505, 1947.
27. Walsh, R. J., and Montgomery, Carmel: A new human iso agglutinin subdividing the MN blood groups. Nature, London, 160:504, 1937.
28. Wolff, E., and Johnsson, B.: Studien über die Untergruppen A_1 und A_2 mit Besonderer Berucksichtigunge der Paternitatsuntersuchungen. Deutsch. Ztschr. gerichtl. Med., 22:65-85, 1933.

CIVILIAN CASUALTIES

Nearly two million casualties, the worst automobile accident toll in the nation's history, were recorded in 1951, according to figures recently released by The Travelers Insurance Companies.

Last year's traffic deaths totaled 37,100, an increase of 1600 over the 1950 mark. The injury count soared to 1,962,600, more than 160,000 over 1950, the Hartford firm reported.

The death and injury totals are highlight statistics from "Lucky You," eighteenth in the annual series of traffic accident data booklets published by The Travelers. The company collects and analyzes accident statistics from each state.

More than 13,000 persons were killed and 570,000 injured last year by drivers who were exceeding the speed limit, according to the report. Excessive speed was "far and away the most dangerous mistake in driving" in 1951.

More than 11,000 drivers under 25 years old were involved in fatal accidents and 416,000 more in personal injury accidents, the figures reveal.

Pedestrian experience in 1951 is termed "an island of encouragement in last year's ocean of accidents." A comparison of 1951 with 1950 shows that pedestrian deaths were "held in check" while injuries were reduced by nearly 9,000.

Other facts from "Lucky You":

Saturday was the most dangerous day of the week to drive.

More persons lost their lives during the hour from six to seven p.m. than in any other hour. Injuries hit their peak two hours earlier, from four to five p.m.

Ninety per cent of drivers involved in 1951 accidents were males.

Ninety-seven per cent of drivers involved in 1951 accidents had at least one year of experience behind the wheel.

Thirty-eight per cent of last year's fatal accidents occurred on the open highway.

There were 92 per cent more fatal accidents on icy roads last year than in 1950.—Public Information Department, The Travelers, Hartford, Connecticut.

THE NATURE OF PAIN

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SENSATION constitutes an awareness of stimulation and bears a highly predictable relation to the intensity of the stimulus. Pain is no different from other sensations in this regard. It does differ, aside from its qualitative features, in that the adequate stimulus for pain sensation is the damaging of tissue. Perception may be viewed as the awareness of stimulation and considered as sensation with concomitant associations and reactions. The average level of stimulus at which pain sensation is first recognized is predictable and can be appraised quite apart from its associated meaning to the individual. Throughout this presentation, emphasis has been placed upon the need to deal separately with the effects of noxious stimulation leading to (a) adjustments without giving rise to sensation, (b) the sensation of pain, and (c) adaptations to pain *per se*. Taken together, they include perception, feeling states, moods and a variety of bodily reactions and behavior patterns.

The Adequate Stimulus

The initiating event for neural impulses involved in pain is the damaging of tissue, and is termed "noxious stimulation." Tissue damage, then, often extremely slight and completely reversible, becomes the keystone of the type of adjustments, sensations, feeling states, and behavior that constitute the pain experience.

The degree of stress which a given human tissue can withstand without being damaged is, under known conditions, uniform. The means of damaging tissue as a factor in such a generalization is a fundamental consideration since there must be a demonstrably close relationship between the energy applied and the rate at which damage is done.

The Dimensions of Pain

Pain sensation is readily recognized and appreciated as different from other sensations. There are several measurable dimensions of pain sensation considered under the following headings: quality—pricking, burning, aching; intensity —threshold to 10½ dols; extension, having to do with site, localization (circumscribed or diffuse), area and volume; and temporal aspects (duration, intermittency, rhythmic, pulsatile, seasonal, diurnal). Anatomically pain is considered in two categories: superficial, with identifiable qualities as pricking and burning and aching, with itching as a variation and combination of the first two qualities; and deep pain, with aching as the most prominent quality. Burning pain sensations may also arise from deep tissues, as for instance, from the esophagus and stomach, or bone marrow.

When pain is analyzed for the purpose of identifying the organ or part involved, additional definition is gained by considering its modifiability, i.e. what causes the pain to increase or to decrease. To the precise identification of the structures responsible for pain, observations of concurrent motor and vasomotor effects are pertinent.

The sensation of pain has a lowest intensity, the threshold pain, and a maximum intensity beyond which no further discriminations of intensity can be made. There are a limited number of just noticeable differences in pain intensity, approximately twenty-one from threshold to maximum. An intensity of pain has been elaborated, using the word "dol" to indicate two steps in discrimination of intensity. Pain intensity is determined by the intensity of noxious stimulation, although modification of pain intensity can occur in areas of hyperalgesia. Furthermore, zones in which painful stimuli are perceived as more than usually intense do not necessarily have lowered pain thresholds. Indeed, two categories of hyperalgesia can be defined: one ("primary") in which the pain threshold is appreciably lowered, occurs with tissue damage; and the second ("secondary") in which the pain threshold is unaltered but due to alterations in the excitatory state in the central nervous system, those impulses which

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Presented at the University of Minnesota by Dr. Harold G. Wolff as the J. B. Johnston Lecture on January 25, 1952. The contents of this communication will appear as Chapter XIV of the book, "Pain Sensations and Reactions" by James D. Hardy, Harold G. Wolff and Helen Goodell, now in press and published by Williams and Wilkins, Baltimore, Maryland. Appreciation is expressed to the latter for permission to print this manuscript in MINNESOTA MEDICINE.

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enter the neuraxis result in an increase in intensity of pain sensation.

For those adjustments, feelings, and sensations from noxious stimulation to ensue, neural endings must be viable. It is not established, however, whether nerve endings *per se* have to be injured by the noxious stimulation, nor, indeed, that they need be stimulated directly. It may be that nerve endings are stimulated as a sequel of liberated products of injury, since, indeed, it has been shown that the latter can exert such an effect.

The Response

Although not all noxious stimulation and tissue damage give rise to pain sensation, they give rise to a host of other reactions essential to adjustment. Further, these reactions to noxious stimuli, although conditioned for the body's protection, may be so costly to the body economy as themselves to damage tissue, giving rise to further adjustments and secondarily to pain.

It is ironic that the protective and adaptive reactions to noxious stimulation may be so vigorous as to cause more damage and pain than the initial assault. Indeed, these phenomena of adjustment may become a greater threat to the integrity of the organism than the original damage. The fact that adaptive reactions *per se* may become a major threat to the organism is especially impressive when the individual reacts to the symbols of danger as he would to tissue damage.

Predictability is a feature of reactions to noxious stimuli when segmental levels are freed of the modifying influence of the suprasegmental apparatus, as in so-called "spinal" animals. But such unconditional reflexes are less predictable in the animal with intact nervous system. Patterns of reaction to noxious stimuli involving the highest integrative functions, dependent as they are upon many circumstances, influence lower or segmental reflexes, and reaction thresholds when measured in the intact individual are a feature of individual experience rather than being inborn.

Hence, "reaction thresholds" to noxious stimuli fall into two general categories: the one is relatively stable, fixed and highly predictable (i.e., the flexor reflex to noxious stimuli in a spinal cat); the other labile, dependent on many circumstances and only to a limited degree predictable (i.e., the conditioned reflex). When "reaction threshold" to noxious stimuli in the intact animal is defined in terms of skin resistance, blood pressure, "wincing," pulse rate, et cetera, it must be appreciated what a labile entity is being appraised.

The impulses arising from noxious stimulation have a strikingly varied summative effect as regards the number of nerve fibers involved in the noxious stimulation. However, these spatial summative effects are conspicuous only in the realm of simple and local reflex adjustments. There is no spatial summation as regards the intensity of pain sensation. Were this not so, intense pain would be omnipresent.

The pain threshold may be raised by a variety of alterations within and outside the nervous system, i.e., interference with function of the conduction pathways and central integrative apparatus, either reversible or irreversible; co-existence of other vivid sensations, particularly pain; distractions, suggestion, hynosis and the action of chemical agents known as analgesics and anesthetics.

Pains of high intensity resulting from noxious stimulation from the periphery is seldom more than of brief duration because such intense stimulation either (1) destroys the neural equipment implicated, or (2) so damages the tissue between the stimulus and the nerve endings as to prevent the stimuli from reaching nerve endings. On the other hand, mild pain may persist for months or years. Moderately severe pain may last for hours or days, but again is usually self-limiting because of local tissue alterations which reduce the number of neural impulses resulting from noxious stimulation.

Structures Involved

All neural impulses having to do with noxious stimulation and pain are funneled through the dorsal roots, the bulk ascending in the cord and brain stem through the ventral lateral tracts to the thalamus. There would appear to be no cortical representation of pain. Although the cerebral cortex is necessary to pain discrimination, it is doubtful whether any one part of the cerebrum is specifically involved.

It seems likely, however, that major brain damage, particularly in the frontal lobes, interferes with the capacity to discriminate among the intensities of pain sensation. Neural impulses from noxious stimulation may be conveyed by fibers of many sizes following various routes to the dorsal ganglia and up the cord. It is, however, likely that the fibers involved in aching and burning sensations are anatomically and physiologically different from those involved in pricking pain. The latter apparently are phylogenetically more recent, are myelinated, larger, and conduct impulses more rapidly.

Short intercallated neurones within the segments of the cord, brain stem and probably in the cerebral cortex are essential to the phenomenology of pain sensation since they are responsible for the maintenance of augmented central excitatory states such as produce itching, hyperalgesia, altered discrimination of intensity, emotional excitement and complicated behavior patterns.

Central Excitatory States

The damaging of tissue may set in motion hyperexcitatory states which require very little additional peripheral stimulation for their maintenance. Such hyperexcitatory states may become self-perpetuating, but once interrupted may not be reinitiated. Central excitatory states are furthered and hindered by a variety of factors in the internal and external environment and only in part are they dependent upon impulses from the area initially damaged. However, heightened excitation in the suprasegmental apparatus may be built up by prolonged mild noxious stimulation, either from the periphery or from lesions within the brain itself.

Also, central excitatory events at segmental or suprasegmental levels are of importance to an understanding of referred pain. "Referred" pain, or pain experienced at a site other than that of noxious stimulation is to be distinguished from pain which arises as a sequel of motor or vasomotor reflex effects. Such pain results from noxious stimuli frequently of intensity below the level necessary for the production of pain sensation. Both types of pain are, in a sense, subsidiary effects; referred pain, results from a spread within the neuraxis, producing sensations at a remote site; the second type of pain results from "spread" within a segment ending in reflex contraction and tissue damage. These effects are easily confused and are often spoken of interchangeably, but actually represent different processes having a common denominator in a heightened level of central excitation. Thus, although noxious stimulation of tissue must be of a given intensity to evoke pain sensation directly, nonetheless even those stimuli insufficiently intense to evoke pain may, by altering central excitatory states, become involved in pain sensation. However, far more frequently noxious stimulation of such low intensity induces local adjustments essential to homeostasis, without evoking the sensation of pain.

Most relevant to the intensity of central excitation and pain is so-called "rest"— a state variously defined by different cultures. Consequently there is no general unanimity of opinion concerning its operation. Perhaps basically, however, it is that state in which reparative or restorative forces are fostered and exceed destructive forces. Such a view circumvents the question whether mobilization vs. immobilization, or one type of inactivity vs. another or one body posture vs. others is operatively more effective. It defines merely the fact that under a given set of circumstances reparation prevails. At the simplest physiological level, this is accomplished by means that reduce noxious stimuli and local vasomotor and skeletal muscle effects which in themselves produce pain or maintain a state of central excitation of a costly and destructive nature. The diminishing of excitation within the neuraxis can be accomplished by the use of agents that have very little pain-threshold-raising effect (i.e., barbiturates administered intravenously may reduce strikingly the amount of pain experienced by those exhibiting secondary reflex skeletal muscle contraction). But relevant also in a consideration of effects of "rest" is the removal of individuals from stressful life situations created by personal and social pressures. Again by lowering the general level of excitation within the neuraxis, pain is reduced or eliminated. This may be attained by "invalidsm." Also, "complete bed rest" in a society that views the "sick bed" as sanctuary, may have such an effect, assuming that the individual's frustration of his own drives and goals is outweighed by the immunity and even prestige afforded by being "sick in bed." Further factors that reduce excitation within the nervous system are sleep, the elimination of prolonged or excessive effort, relative freedom from harassing conflicts and anxieties, and the delegation of responsibilities and guilt to the group at large and to other individuals. Moreover, the passage of time with its opportunities for alterations and adaptations may be a most important factor in the waning of central excitation.

The phenomena of itch and secondary hyperalgesia are closely linked, both representing local augmentation in the central excitatory state. Itch does, however, depend as well upon low frequency impulses from noxious stimulation of low intensity. Yet these impulses must occur sufficiently frequently to evoke a sensation with the peculiar features which give itch its name. Itching is augmented during periods of skin vasodilatation. During the actual itching, which is phasic and seldom of long duration in any one area, the pain threshold is lowered. With the introduction of additional noxious stimuli such as results from pin prick or "scratching," the itch sensation is promptly dispelled. Similarly, the application of cold reduces itching in contrast to heat which augments it. States of emotional tension, fatigue, frustration and depression augment itching. Mild analgesics reduce or eliminate itch sensation.

From such studies on secondary hyperalgesia and the allied sensation of itch, interest has focused upon the degree of central activity which may occur at a number of levels within the neuraxis. The intensity of excitation at the highest levels, stemming from the individual's adjustments to a variety of environmental and social circumstances, may be as significant as that at the segmental level to which impulses arrive from damaged tissue.

On the other hand, an understanding of the nature of secondary hyperalgesia and an appreciation of the fact that relatively few impulses from the periphery may maintain a "feedback" system exhibiting itself in part as pain, has once again focused interest on the expediency of blocking noxious impulses at their source. Interruption of noxious stimulation even temporarily may lower the level of central excitation and interrupt a cycle of events which has become almost self-sustaining. Hence, as indicated above, painful states in areas exhibiting either secondary hyperalgesia or painful reflex vasomotor and skeletal muscle effects from such heightening of excitation within the neuraxis, when interrupted, sometimes do not recur.

Procainization terminates the pain from contracted skeletal muscle either by blocking afferent impulses from the contracting tissue or by altering the contractile state of the muscle. Secondary hyperalgesia, either superficial or deep, may be dispelled by blocking afferent impulses through the use of local anesthetic agents, or by means of counter irritants.

A dramatic instance of the interplay of the effects of low intensity peripheral noxious stimulation and the effect of social and personal pressures in a maladjusted individual is witnessed in the intractable pain exhibited by some amputees. Such persons experience prolonged intractable pain, associated with kinesthetic experiences of the amputated part. Sometimes the elimination by local nerve block or by operative removal of a scar about the terminal portion of the severed nerve terminates this phenomenon. At other times, however, a self maintaining system of excitation has apparently become so well established that neither operative removal of scars, interruption of nerve pathways or even serious brain damage can complete eliminate it.

Factors that Modify Perception and Reaction to Pain

This consideration of the general level of excitement within the neuraxis, as indicated earlier, leads directly to a consideration of the individual's reactions to the the sensation of pain *per se.* Impulses reaching the neuraxis, regardless of whether they evoke pain, modify neural activity in such a way as to effect moods, feeling states and behavior patterns. Pain sensation can evoke responses beyond those appropriate, and out of all proportion to the danger of the situation. Inversely, pain sensation can be a factor in suppressing reactions because of an appreciation that no genuine threat is involved or that the assault can be readily withstood. In other words, the response to pain sensation depends to a greater or lesser degree on an individual's past experience and the meaning of pain sensation in terms of threat. The attitude of the society in which the individual finds himself and the latter's own point of view about pain sensation, although they do not modify the pain threshold and the ability to discriminate the intensity of pain sensation, become factors which augment the protective-adaptive patterns or repress them.

Remarkable tolerance for mild pain can be developed and maintained through such unrelated agencies as chemical substances, brain damage, group pressures and the reassurance of other individuals. Also, reactions of maximal strength can be elicited by stimulation at threshold intensity and in properly conditioned individuals by stimulation even of sub-pain threshold intensity. Inversely, placebo agents become remarkably effective in the relief of "suffering" even when pain is of moderate intensity.

All agents known as analgesics raise the pain threshold and alter perception of pain. However, the suppression of sensation is usually not as important an action as regards pain relief as are the effects upon reactions to noxious stimulation and to pain itself. Thus, the pain of a patient in labor is greatly reduced following administration of an opiate, without alteration in pain threshold or in ability to discriminate differences in pain intensity. Analgesics alter reaction patterns to pain by inducing relaxation, feelings of well-being, and sleep. The untoward aspect of these effects is that only those agents which have conspicuous and perhaps, from a social point of view, dangerous "side effects" best relieve suffering. Clearly exhibiting the "defects of their qualities," they present a dilemma, since the very effects which make for usefulness as analgesics, make for danger of addiction for those who suffer, regardless of whether the suffering is induced by noxious stimulation of bodily tissue or by threatening circumstances resulting from interpersonal or social stresses. The search for agents that raise the pain threshold alone continues, though, to date there is nothing to indicate that the possibility of finding one exists.

Appreciable differences concerning pain-threshold-raising properties are exhibited by such varying classes of agents as represented by morphine, codein, meperidine and the antipyretics. In general, the coal tar products in maximal amounts raise the threshold as so to eliminate 2 dol pain. Codein and meperidine in ceiling amounts raised the threshold so as to eliminate pains of 2 to 4 dols intensity. Morphine may eliminate pains of 4 to 6 dols intensity. But pains of 6 to 10 dols intensity cannot be eliminated without anesthesia, although they may be reduced to 3 to 4 dols intensity.

Whether the primary hyperalgesia be due to peripheral tissue damage or to damage in the conducting peripheral pathways, the pain threshold is lowered. Indeed, it may be so lowered that even those centrally acting analgesics capable of eliminating 4-6 dol pain are incapable of bringing the threshold up to the usual level. Effective procedures are those that prevent further stimulation of the damaged parts. After extensive skin burns, for example, the collection and drying of the surface serum usually gives the organism precisely this kind of protection. In those with peripheral neuropathy, relief from weight bearing, even that of the slightest covering, and the lessening, by exposure, of the heat produced by the individual's own body serve such a need.

The Significance of Pain in Human Adjustments

Man's ability to experience pain is not essential to a suitable biological adjustment. Children congenitally without the capacity to experience pain, at least when surrounded by pain-sensitive adults, adequately adjust themselves to their environment, as do persons who have had pain pathways surgically interrupted. Since, with exposure to noxious forces, the rate of tissue damage, rather than the amount or seriousness of such damage, determines intensity of pain, the latter is a poor indicator of the gravity of the subject's plight. Moreover, when injury is slowly- or non-progressive, even though extensive and ominous, little or no pain may be experienced. Persons critically ill, as with terminal neoplastic disease, and those gravely injured do not inevitably experience intense pain. Hence man has been obliged to develop other means of protecting himself and pain becomes of secondary importance to diagnosis. Alarm or defense reactions identical in pattern to reactions to intense pain may be initiated by any stimulus if that stimulus has been previously associated with injuries, dangerously threatening situations, or frustrations. As a matter of fact, the bulk of such reactions involved in common experience are initiated by non-painful stimuli.

In a variety of cultures, the recognition that a certain amount of pain is an inevitable consequence of living coupled with its appreciation that a pattern of complete avoidance of pain endangers the attainment of full maturity has been the basis for the development of the thesis that some pain is a "Good thing" (aspects of Christian doctrine, Stendahl, C. S. Lewis).

A feature of rapidly changing mores and one which is conspicuous in our culture is epitomized in the question, "How much should I put up with?" This plaint or query is especially conspicuous in cultures where the importance of the individual is stressed. This uncertainty arises from failure to distinguish between those aspects of man's relation to his universe that may change rapidly and those that must change slowly.

Certainly, pain sensation is a prime provocator of adjustment to environmental stimuli and, as such, is a highly important biologic function for man. It grossly defines the limits of man's life, but symbols and threats of pain soon become substitutes for noxious stimulation. Moreover, danger, threats to security, loss of love or disapproval by group or individual evoke the same protective and adaptive reactions and almost the same feeling states, emotions and behavior patterns as does noxious stimulation. This illuminates the nature of human protective reactions; and yet, on the other hand, the similarity of response has blurred the distinction between the sensation of pain and the reaction to noxious stimulation and pain.

ANALYSIS OF THE EFFECTS OF NOXIOUS STIMULATION

A. **Reactions not Dependent on Consciousness (Nociception)**

1. Effects at the Site of Tissue Damage
    - Inflammation, Cellular Death and Electrical Potential Changes
2. Integrated Reflex Effects
    - Pilomotor
    - Skeletal Muscle Contraction
    - Gastrointestinal
    - Sudomotor
    - Neuroendocrine
    - Humoral
3. Local Lowering of Threshold for Noxious Stimulation and Heightened Central Excitatory State

B. **Reactions Involving Consciousness: "The Pain Experience"**

I. Pain Sensation

1. Dimensions
    - (a) Localization: Site Extension Movement
    - (b) Quality Burning Pricking (Itching) Aching
    - (c) Intensity Threshold to 10½ Dols
    - (d) Temporal Aspects
        - Frequency Rhythmic Pulsatile Periodic
        - Duration Diurnal Seasonal
2. Modifying Factors
    - (a) Admixture of Other Sensations
        - Pressure Fullness Tightness Et cetera
        - Numbness Heat Cold
    - (b) Factors Increasing and Decreasing Intensity Primary Hyperalgesia
        - Secondary
    - (c) Factors Modifying Site Quality and Temporal Aspects

II. Feeling Mood Attitude Bodily and Behavior Reactions to Pain Sensation

1. Individual and Cultural Factors Conditioning Reactions to Pain Sensation
    - (a) Past Life Experience
2. Agents and Procedures Altering Reactions to Pain Sensation
    - (a) Analgesics and Other Pharmacodynamic Agents
    - (b) Suggestion Distraction and Hypnosis
    - (c) Life Setting of the Pain Sensation
1. Concurrent Adaptation Problems
    - (d) Reversible and Irreversible Alterations in Brain Function
        - (1) Sleep
        - (2) Brain Injury
        - (3) Et cetera.

The magnitude of protective responses induced by pain is based in large part on the way the affected subject perceives it. Perception depends upon a multiplicity of factors including the genetic equipment, basic individual needs and longings, earlier conditioning influences, the host of later life experiences and the nature of cultural pressures. The common denominator, as regards magnitude of reaction to pain, indeed is the interpretation of an event as more or less threatening.

This follows because the response may be in terms of a conditioned pain stimulus, which, though slight as regards its destructive effects on the organism, nevertheless has taken on, because of earlier experience, implications of grave danger. Hence, in man it is the response to pain *per se* that becomes of major importance, and indeed is capable of becoming a greater threat to survival than the assault.

Moreover, the response, regardless of the personal significance of the noxious stimulus, may be a function of the pre-existing level of central excitation. The latter, in turn, is a reflection of the cumulative effects of the various noxious stimuli of life stress, and in defining the magnitude of central excitation, shapes the magnitude of the response.

In brief, pain sensation has a basic significance in earlier life adjustments of man, though it becomes less and less essential with growing individual experience. Indeed, noxious stimulation and pain may evoke reactions that are more dangerous than the assault, and may even threaten survival. Those who would deal with pain as therapists must concern themselves especially with reactions to pain. The magnitude of protective reactions are dependent in part on concurrence of noxious stimuli, perhaps of low intensity, arising from parts remote from the main noxious source, as well as upon other non noxious, but disagreeable stimuli.

Moreover, in the total pain experience not only the immediate setting of the pain, but the meaning of such pain for the individual in terms of his past must be appreciated. Hence, man with the capacity to react defensively to symbols of danger is especially vulnerable, since he reacts not only to noxious stimuli but to a host of threats and indeed, may dangerously overreact to both, using both appropriate and inappropriate protective patterns. It thus becomes clearer why a physician who deals with the broader aspects of the sufferer's life experience and so makes efforts to support him in every way during a period of stress, is often more effective in a crisis than one who deals merely with the source of noxious stimulation. A transient painful incident for man is only one of a series of threatening circumstances to which he is exposed, his recent and remote past being perhaps the major factors in defining what the pain means to him and how he will meet it.

The Nature of the Pain Experience

It is appropriate to return again to the concepts which have been held of the nature of pain and to suggest a thesis which is compatible with present knowledge. Widely held in the nineteenth century, the intensive theory proposed to account for pain as the end result of strong stimulation of any sensory equipment, for example, visual, auditory, thermal or tactile. Such a view is not supported by data now available.

The ancient concept of pain as an emotion is supported by the newer information, at least to the extent that emotions and attitudes are among the identifiable reactions to pain. However, pain is a sensation, and, like other sensations, is mediated by specialized neural equipment. The adequate stimulus for pain sensation is any force resulting in the sufficiently rapid damaging of tissue, and, within limits, the rate of tissue alteration determines the intensity of pain.

Better to understand the phenomenology of pain, it was found desirable to separate the responses to noxious stimulation into (a) those not dependent upon consciousness, and (b) those involving consciousness. The former includes the automatic reflex responses; the latter includes on the one hand the pain sensation, and on the other hand the feeling, mood and attitude reactions largely determined by the past experience of the individual to the automatic responses and to the sensation of pain. It is the interplay of these fundamental components within the individual which comprises the pain experience. Such a broad specification was found necessary if the pain experience is to include the reportable feeling states and other sensations correlated with the report of pain. The reactions to noxious stimulation not dependent upon consciousness and those represented by the pain experience have been shown to be intimately interwoven.

Clean your fingers before you point at my spots.—Benjamin Franklin

The prudent will prepare themselves to encounter what they cannot prevent.—James Russell Lowell

OSTEITIS CONDENSANS ILII

The Relationship to Juvenile Epiphysitis

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IN A PREVIOUS publication,[6] the author advanced the theory that osteitis condensans ilii is a direct result of juvenile epiphysitis of the sacro-iliac joints. This theory was supported by the report of six cases in which the condition was associated with residual changes of juvenile epiphysitis of the dorsal spine (Scheuermann's disease). Since this publication I have seen more than thirty additional cases of condensing osteitis ilii with co-existing Scheuermann's disease. My original observation, therefore, has been confirmed. The similarity of the degenerative changes in the spine and in the sacro-iliac joints, together with the constant co-existence of the spinal and the sacro-iliac condition, has now convinced me that these two are intimately related and result from the same original disease, juvenile epiphysitis. That the sacro-iliac joints are much less commonly involved than the spine is probably of little significance. The significant fact is that when they are definitely found to be involved, the changes in and adjacent to the joints are of the same character as seen in Scheuermann's disease.

Until the publication of my preliminary report, no definite etiological factor had ever been successfully assigned to condensing osteitis ilii. Most recently Folke Knutson,[4] in his presentation before the Sixth International Congress of Radiology in London in 1950, was not aware of any known causative entity. Radiologists commonly added the words "etiology unknown" to their interpretation of these cases. Most observers have considered it on a par with anomalies, with no recognizable relationship to symptoms. This position is not supported by the work of Hare and Haggert,[3] who reviewed the subject in 1945 and reported twenty-three patients observed in their clinic. Their youngest patient was twenty-three years of age. They quote Rendich and Shapiro, who were able to secure a biopsy during the performance of surgical fusion of the joint. This revealed a non-inflammatory calcium condensation in the osseous tissue. Hare and Haggert were not able to clarify the etiology of the condition. All of their patients came for examination because of low back pain, localized either to the lumbar or sacro-iliac region. In some instances the pain radiated downward into the lower extremities, occasionally simulating herniated disk. Shipp and Haggert[5] reviewed the same material and extended their observations to include 100 cases. All their patients were adult females, the oldest forty-four and the youngest nineteen years of age. They concluded that the condition occurs as the result of mechanical strain affecting an amphiarthrodial joint. They found the process to be reversible.

The roentgenologic features of vertebral epiphysitis have been described by deLorimier[2] and others. The demonstrable abnormalities seen immediately subsequent to the termination of the active stage of the disease consist mainly of structural changes in the shapes of the vertebral bodies, with a tendency toward wedge-shaped deformities, intra-osseous herniations of nuclei pulposi, or so-called Schmorl's nodes, and irregular cortical sclerosing changes around the margins of the vertebral bodies and of the margins of the Schmorl's nodes. These changes produce variations in the curvatures of the spine, mainly kyphosis, but also scoliosis, which is distinctly localized to the region involved. Slight narrowing of the intervertebral disks may be present, probably as an associated result of the Schmorl's nodes. In subsequent years, degenerative changes develop in the involved areas of the spine, which consist mainly of hypertrophic marginal lipping. This begins to be in evidence in the third decade of life, considerably earlier than in the average normal. In my observations there is also an increasing degenerative change in the intervertebral disks as shown by further narrowing of the disks. In my previous report the youngest patient, aged twenty-six, showed definite hypertrophic lipping although she presented relatively minimal structural changes of the vertebral bodies. Since that time I have observed a younger patient, an unmarried girl, aged eighteen, showing condensing osteitis of the left sacro-iliac joint, with Scheuer-

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mann's disease of the dorsal spine, without any degenerative changes. I believe this is the youngest case ever reported. In my previously reported Case 6, and in several additional cases seen more recently, I also observed condensing osteitis extending from the vertebral plates into the adjacent cancellous structure of the vertebral bodies, very similar to the condensing osteitis in the ilia. It is assumed that all of these degenerative changes superimposed on the structural changes are due to faulty statics or mechanical strain, and are on the same basis as the degenerative findings seen in the hip joints subsequent to juvenile epiphysitis.

The known facts about condensing osteitis ilii might be itemized as follows:

1. The condensing osteitis is a homogenous sclerosing process or calcium condensation in the ilium directly adjacent to the sacro-iliac joint. It may be unilateral, but more commonly is bilateral. In a minimal degree of involvement it may be limited to the lower portion of the auricular process of one ilium. My youngest patient, aged eighteen, is of this type. In the more marked cases the calcium condensation extends along the entire vertical diameter of the auricular processes of both ilia, and flares laterally into the adjacent bony structure.

2. The sclerosis is usually limited to the iliac side of the joint, but occasionally the sacral side is involved. Folke Knutson reported five cases out of thirty-seven with sacral involvement, and I have found it in two of my recent cases.

3. Hitherto, the joint was thought to be uninvolved. Case 1 of my previous report showed evidences of degenerative arthrosis in the involved sacro-iliac joint of a unilateral condensing osteitis, the uninvolved joint being apparently normal. Folke Knutson also found this complication, thus confirming my observation. Since then I have seen several other patients with distinct degenerative changes in the involved joints.

4. Biopsy has revealed the condition to be a non-inflammatory calcium condensation in the osseous tissue.

5. The condition is found predominantly in women, but a small proportion, about 5 per cent, has been found in men.

6. The age distribution in my series is from eighteen to sixty-six, but the condition is usually discovered between the ages of twenty and forty. Hare and Haggart gave their lowest age incidence as twenty-three, but in the extension of this study Shipp and Haggart reported a patient nineteen years of age. These authors also present evidence that the sclerosing process seems to be reversible, which may account for the rare incidence of the condition in older individuals.

7. The predominant symptom is low back pain. This may be lumbar or sacro-iliac in location, and may radiate into the lower extremities.

8. The condition is not infrequently associated with a degenerative process in the symphysis pubis, with sclerosing changes in the adjacent portions of the pubic bones, very similar to the changes in the ilia.

The unknown facts about osteitis condensans ilii are mainly as follows:

1. The cause of the condition has been unknown.

2. The fact that it occurs predominantly in women has not been satisfactorily explained. Hare and Haggart, and Shipp and Haggart point out that in the gynecoid pelvis the sacrum tends to be of the horizontal type, while that of the android pelvis is more oblique in position. It is possible that this may account for a variation in the distribution of the condensing osteitis. In the female, and in the male pelvis with a gynecoid tendency, the sclerosis may follow the typical pattern, while in the male with a distinctly android pelvis the sclerosis may be diffusely distributed over the entire auricular process and thus escape detection in the casual examination. I have observed a case of this type, a boy aged thirteen, who showed a marked Scheuermann's disease of the dorsal and lumbar spine. In addition he showed a fragmented calcification of the epiphyses over the crests of the ilia, and areas of decalcification of the margins of both sacro-iliac joints. Subsequent observation revealed finally at the age of twenty-two an irregular serrated contour of the iliac crests, a distinct increase in calcium density to a depth of 5 to 8 millimeters of the articular margins of the sacrum and ilia at both sacro-iliac joints, and suggestion of reduction in width of the joint spaces as compared with the usual normal at this age. In another recent case, a man aged forty-two, the findings were as follows:

> "There are old structural deformities in the lower dorsal and upper lumbar vertebral bodies, with multiple Schmorl's nodes, with moderate hypertrophic marginal lipping, especially in the lower dorsal region, and with some degenerative changes in the intervertebral disks in the lower dorsal and upper lumbar area. The findings are characteristic of the residual changes from old juvenile epiphysitis with secondary degenerative arthrosis. There is questionably a slight narrowing of the lumbosacral disk, but the lower lumbar disks are otherwise within normal limits in width, with the Schmorl's nodes involving also the lower lumbar segments. There is a localized condensing osteitis in the upper portions of the sacro-iliac joints, mainly in the adjacent portions of the ilia, and resembling the changes produced by osteitis condensans ilii. It is, therefore, probable that this represents a variation of condensing osteitis ilii, namely the type of process more commonly occurring in the male pelvis because of the sex variation in the developmental structure of the pelvis."

If subsequent observations on large groups of cases of Scheuermann's disease should show this type of change in the sacro-iliac joints in a sufficiently large group of males to compare favorably with the combined incidence of Scheuermann's disease and condensing osteitis in the female, one would be on fairly firm ground in accepting this as the more common manifestation of this condition in the male. Into this picture one would then have to adapt the presence of a gynecoid tendency in the male patient with typical condensing osteitis.

It must be conceded that factors associated with pregnancy may be responsible for the more common development of the sclerosing osteitis in the female. The damage to the joints by the epiphysitis may not have been sufficient to produce the sclerosis, but the physiological changes in the joints as a result of pregnancy, coupled with the increased weight bearing strain, may be the immediate causative factor in the appearance of the sclerosis. To establish this one should show the absence of the sclerosis before the onset of the pregnancy. This assumption would also explain later reversal of the process. The basic causative factor, however, is the pre-existing arthrosis from juvenile epiphysitis.

3. The most important question to the patient and the attending physician is whether the condition is of symptomatic significance, and what is its treatment. If we assume that the condition arises on the basis of alteration of the articular surfaces by juvenile epiphysitis, and that a majority if not all such joints undergo a degenerative change, then it may also be assumed that such a degenerative arthrosis gives rise to low back pain. In turn, this concept would govern therapeutic procedures.

4. Can one suspect the presence of osteitis condensans ilii when Scheuermann's disease is demonstrated in the spine? Usually we have found the sacro-iliac changes first, and later substantiated the presence of spine changes. Very recently a case presented itself in which this procedure was reversed. The patient, a married woman, aged thirty-nine, gave a history of injury to the shoulder and dorsal spine region. Films of the dorsal spine revealed marked changes resulting from juvenile epiphysitis, including the sclerosing changes above referred to in Case 6 of the previous report, with the sclerosis radiating into the cancellous structures of several vertebral bodies. Later, re-examination to include the sacro-iliac joints revealed a typical condensing osteitis in one of the joints. The inclusion of a film of the sacro-iliac region in all cases of vertebral epiphysitis, either active or old, may therefore yield valuable additional information.

Consideration of the problem of sex incidence of vertebral epiphysitis should not yield any additional confusion. It is a very common condition, and in a general group of patients is found about equally common in both sexes. Brailsford[1] states that it is more frequently found in female patients, while deLorimier found it more common in males. It is possible that these observations were made on material with unequal sex distribution, and that one may therefore assume that sex is not a determining factor in the incidence of this disease.

Conclusions

1. Osteitis condensans ilii has been shown to be co-existent with vertebral epiphysitis in all cases which have recently come under my observation.
2. Osteitis condensans ilii has been shown to be associated with changes in the sacro-iliac joints suggestive of degenerative arthrosis.
3. The changes in the sacro-iliac joints have been shown to be of similar nature to those in the spine in vertebral epiphysitis.
4. The demonstration of osteitis condensans ilii in unmarried women, in a young unmarried woman aged eighteen, and in male patients, casts distinct doubt on the premise that pregnancy is the etiological factor, although it does not eliminate it as a contributing factor in the actual de-

(Continued on Page 546)

CORRELATION OF BLOOD SUGAR VALUES WITH GLYCOSURIA IN DIABETICS

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BLOOD SUGAR levels and urinary glucose excretion are two important laboratory aids used in establishing control in diabetics. Much has been written in the vast literature of diabetes on the merit of these estimations. Joslin[5] states that "while the twenty-four-hour quantity of sugar in the urine is not an absolute measure of the degree of control of diabetes, still in the vast majority of cases it is an accurate index." He agrees with John[3,4] that the glucose excreted should not exceed 10 gm. daily. In this report, the criteria for control as judged by blood sugar levels were somewhat less rigid than those set by Joslin,[5] Duncan,[1] and John.[3,4] For purposes of this paper, a diabetic was termed "controlled" if the 7 a.m. fasting blood sugar was less than 130 mg. per cent and the preprandial values did not exceed 170 mg. per cent. Joslin believes that blood sugar levels in a diabetic should be normal before and after meals. Duncan does not consider that a patient is controlled unless the blood sugar values at 11 a.m., 4 p.m. and 10 p.m. are less than 150 mg. per cent, and the fasting morning value is between 70 and 100 mg. per cent. John requires a "normal or near normal" blood sugar before each meal and a morning fasting value of 100 mg. per cent or less.

The purpose of this study was to determine how many of those patients who excreted 10 or less gm. of glucose a day in the urine could be considered controlled when judged by the blood sugar requirements described above. It also afforded an opportunity for assessing the value of the qualitative Benedict test as usually carried out for urinary glucose. It was not our intention to enter into the controversy concerning the merit of "chemical" control of diabetes, but only to present certain observations on the relationship of glycosuria to glycemia in patients with diabetes.

Method

The patients investigated comprised a group of diabetics who were admitted to hospital for various reasons and who were under the care of their private physicians. Two twenty-four hour studies were made on eleven of twenty-two patients. The first was made soon after admission, before any changes had been made in diet or insulin dosage. The second study was made just prior to discharge. Only one twenty-four-hour study was made on the remaining eleven patients, either because there had been no change in treatment or because the patient left the hospital before further investigation could be carried out. One patient who did not have diabetes was added to the group for purposes of comparison.

Procedure

1. Blood sugar estimations were made at 7 a.m., 11 a.m., 4 p.m., 10 p.m. and 7 a.m. the following morning (Folin-Wu-method).
2. All urine excreted was collected in four periods corresponding to the blood sugar estimations.
3. Urine specimens were collected, after the bladder had been emptied, at times which coincided as closely as possible to the times of the various blood withdrawals. These are reported in the usual way to show from 0 to ++++ tests for urinary sugar (Benedict qualitative reagent).

Results

It can be seen in Tables I and II that in eleven examinations a urinary excretion of less than 10 gm. of glucose in twenty-four hours suggested that diabetic control had been attained. In each case, however, the corresponding fasting or preprandial blood sugars or both did not fall within the prescribed limits. In one-third of thirty-three examinations the twenty-four-hour urinary glucose excretion did not correctly mirror the state of diabetic control when this was assessed by blood glucose levels. Nevertheless, if both a normal fasting blood sugar and a urinary glucose excre-

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tion of 10 gm. or less in twenty-four hours were required of these patients, the state of control in all of them could be correctly determined.

TABLE I. PERIODIC BLOOD GLUCOSE VALUES AND DAILY URINARY GLUCOSE EXCRETION IN ELEVEN DIABETIC PATIENTS

Patient Number	Age	Sex		Blood Glucose mg. per cent					24 hour urinary glucose excretion in gm.
				7 am	11 am	4 pm	10 pm	7 am	
1	75	F	(a)	410	550	350	465	335	34.1
			(b)	120	90	145	160	130	0.0
2	74	F	(a)	380	335	317	315	305	23.8
			(b)	186	250	250	335	188	17.1
3	65	M	(a)	111	352	433	224	72	41.9
			(b)	140	273	172	93	130	4.7 incomplete
4	62	M	(a)	284	376	400	325	268	28.3
			(b)	96	105	176	117	121	1.9
5	33	F	(a)	135	290	234	168	128	5.3*
			(b)	80	95	139	108	110	0.0
6	57	F	(a)	254	308	306	350	286	49.6
			(b)	117	83	108	102	93	0.4
7	58	M	(a)	194	250	160	190	154	7.3*
			(b)	98	191	162	170	87	4.6*
8	62	F	(a)	186	236	128	202	155	3.2*
			(b)	150	305	139	132	132	18.1
9	69	F	(a)	286	300	260	305	234	5.7*
			(b)	95	132	151	130	90	4.2
10	56	F	(a)	125	465	340	300	280	37.4
			(b)	152	220	210	197	160	3.4*
11	49	M	(a)	135	64	260	246	111	24.9
			(b)	100	144	126	148	126	1.4

* Controlled when judged by urinary glucose excretion but not controlled when assessed by blood glucose levels.

TABLE II. PERIODIC BLOOD GLUCOSE VALUES AND DAILY URINARY GLUCOSE EXCRETION IN ELEVEN DIABETIC PATIENTS AND ONE NORMAL PERSON

Patient Number	Age	Sex	Blood Glucose mg. per cent					24 hour urinary glucose excretion in gm.
			7 am	11 am	4 pm	10 pm	7 am	
12	50	F	204	325	345	269	270	18.9
13	60	F	310	355	340	405	332	67.2
14	52	F	106	122	212	175	145	0.0*
15	48	F	194	290	325	252	228	6.8*
16	64	F	246	338	282	232	204	2.2*
17	60	M	160	162	144	151	158	2.7*
18	31	M	206	310	284	278	200	67.2
19	46	F	175	270	214	212	208	0.6*
20	69	M	320	370	254	220	182	8.6 incomplete
21	70	F	266	300	236	296	248	21.9
22	18	F	202	256	242	272	272	34.5
23	52	F	102	98	130	130	105	Non-diabetic

* Controlled when judged by urinary glucose excretion but not controlled when assessed by blood glucose levels.

It was reasonable to expect that these patients would show elevated renal thresholds for glucose. Renal thresholds should ideally be determined by reference to the arterial glucose content, but it has been shown that in diabetics there is little difference in arterial and venous glucose levels when blood is taken in the post-absorptive state.[6] In four of ten patients negative qualitative Benedict tests were noted at times when the blood glucose values exceeded 200 mg. per cent. In other instances, the urine showed only a trace of sugar with similarly high blood sugars. Marble[7] has summarized the opinions of a number of workers concerning the presence of high renal thresholds in diabetic patients. Although some believe that the renal threshold tends to rise as the disease progresses, especially if nephritis or hypertension develops, others have found the higher thresholds in young patients and those with diabetes of recent onset. Two of the four patients cited had hypertension, and although the blood pressure was normal in the other two, both had a history of diabetes of longer than ten years. (Pts. 10, 14, 15, 19.)

The quantitative Benedict urinalyses carried out at the same time as the blood sugar estimations were unreliable indices of diabetic control. In Patient 3 (series a), a one plus result was found when the blood sugar was 72 mg. per cent, yet six days later (series b) a negative test was associated with a blood sugar of 172 mg. per cent. Patient 19 showed three negative urine sugar tests at times when the blood sugar had not fallen below 210 mg. per cent. Several other examples follow, with the urine Benedict tests in parentheses. Patient 10, 230 mg. per cent (++), 280 mg. per cent (+); Patient 12, 325 mg. per cent (Trace), 260 mg. per cent (++++; Patient 15, 320 mg. per cent (++), 250 mg. per cent (++++).

Mollerstrom,[8] Forsgren[2] and others believe that there is an endogenous periodicity of carbohydrate metabolism. An examination of the twenty-four-hour blood sugar curves reported by Sprague and Newson[9] revealed that six out of eight of their diabetic patients, who were receiving no insulin, developed their highest blood sugar level at 11 a.m. At the time of admission to hospital ten of the patients reported in this study were receiving no insulin. In seven of these patients (Nos. 1, 7, 9, 10, 16, 19, 21) the highest blood sugar level was reached at 11 a.m. In two patients (Nos. 6 and 13) it occurred at 10 p.m. and in one patient (No. 2) at 7 a.m.

Summary

Blood sugar levels were determined on twenty-two diabetic patients and one normal person at 7 a.m., 11 a.m., 4 p.m., and 7 a.m.

A twenty-four-hour urinary glucose excretion was determined in each case.

A qualitative Benedict test for urinary glucose was made each time a blood sugar sample was obtained.

Consideration of the twenty-four-hour urinary glucose excretion alone led to an erroneous conclusion about the state of diabetic control in one-third of the cases.

If both the fasting blood sugar and the twenty-four-hour urinary glucose excretion were used in this assessment the state of diabetic control could be correctly determined in all patients.

The qualitative Benedict test was found to be an unreliable guide in determining the state of diabetic control.

The highest blood sugar value in patients not receiving insulin was most commonly found at 11 a.m.

Acknowledgment

The author wishes to acknowledge the kind co-operation of all the physicians whose patients were subjects in this study and the kind advice of Dr. P. H. Sprague, who suggested this study. He would also like to express his appreciation to the laboratory staffs of the University of Alberta and Royal Alexandra Hospitals for technical assistance.

References

1. Duncan, G. G.: Diseases of Metabolism. Ed. 2. Philadelphia: W. B. Saunders Company, 1947.
2. Forsgren, E.: 24-Stunden-Variationen des Reststickstoffgehaltes im Blute. Acta med. Scandinav., 73: 213, 1930.
3. John, H. J.: Diabetic patient. Ohio State M. J., 44:33, 1948.
4. John, H. J.: Treatment of diabetes mellitus. Progress in Clin. Endocrinol., p. 273 (Jan.) 1950.
5. Joslin, E. P., Root, H. F., White, P., Marble, A., and Bailey, C. C.: The Treatment of Diabetes Mellitus. Ed. 8. Philadelphia: Lea and Febinger, 1947.
6. Lyall, A.: Laboratory diagnosis of diabetes mellitus. Pract., 157:430, 1946.
7. Marble, A.: Treatment of diabetes mellitus in presence of a high or low threshold for sugar. M. Clin. North America, 21:429, 1937.
8. Möllerström, J.: The periodicity in carbohydrate metabolism. Acta med. Scandinav., Suppl., 50:250, 1932.
9. Sprague, P. H., and Newson, D. A.: A study of the 24-hour blood sugar curve in diabetic patients. Canad. M. A. J., 31:609, 1934.

OSTEITIS CONDENSANS ILII

(Continued from Page 543)

velopment or exacerbation of the sclerosis or of the symptoms in female patients. The theory is advanced that the apparent high incidence of this condition in female patients is due to the difference in weight-bearing impact resulting from the more horizontal position of the female sacrum, thus giving rise to the typical sclerosing changes, while in the android pelvis the changes are distributed more diffusely over the more obliquely placed articulation, and are therefore less easily recognized.

5. Juvenile epiphysitis of the sacro-iliac joints is considered to be the etiological factor in condensing osteitis ilii.

References

1. Brailsford, James F.: The Radiology of Bones and Joints. Baltimore: The Williams & Wilkins Co., 1945.
2. deLorimier, Alfred A.: The arthropathies. Chicago: The Year Book Publishers, Inc., 1943.
3. Hare, H. F. and Haggart, G. Edmund: Osteitis condensans ilii. J.A.M.A., 128:723, 1945.
4. Knutson, Folke: Changes in the sacro-iliac joints in morbus bechterew and osteitis condensans ilii. Abstracts of papers, Sixth International Congress of Radiology, London, 1950.
5. Shipp, Frank L., and Haggart, G. Edmund: Further experience in the management of osteitis condensans ilii, J. Bone & Joint Surgery, 32-A: 841-847 (Oct.) 1950.
6. Ude, Walter H.: Osteitis condensans ilii, the possible relationship to juvenile epiphysitis. Journal-Lancet, 70:81-82 (Feb.) 1950.

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BLADDER REGENERATION

Case Report and Review of the Literature

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THE PHRASE "bladder regeneration" is unusual and may be confusing.

Regeneration means the replacement of a lost part in such a manner that the newly formed part corresponds with the lost one in form, structure and size. This is not to be confused with compensatory hypertrophy.

The more developed the animal species, the less is the power to regenerate. In man the power of regeneration is confined to regeneration of tissues *per se.*

A review of the literature reveals that in 1887 Busachi[1] reported regenerative processes in smooth muscle fibres after the seventh day following injury to the prostate, intestine, and uterus.

In 1888, Tizzoni and Poggi (quoted by Ravasini[5]) resected the bladder in a dog and substituted for this a segment of small bowel. Normal bladder function was restored, but when the animal was sacrificed after several years and examined at postmortem it was found that a new bladder had been formed and the segment of bowel had become a useless diverticulum. Ravasini also cited an animal experiment of Schwartz who observed bladder regeneration in a dog. He had removed the entire bladder except the neck, trigone, and ureteral orifices. Ravasini himself reported a clinical case of carcinoma of the bladder in which he removed the entire bladder except the left half of the trigone and a small portion of the adjoining wall. A cystogram made 8 weeks postoperatively showed a newly formed normal appearing bladder.

In 1923 Schiller[6] studied bladder regeneration in rabbits after resection of the bladder down to the trigone. One animal was operated on twice and formed a new bladder after each excision. He operated on nine animals. Two died. The other seven all formed new bladders. All the animals were later sacrificed and histologic studies showed in all cases slender individual muscle cells, fibres, and bundles. This confirmed his opinion that the process was one of regeneration rather than hypertrophy and hyperplasia.

Kretschmer's[3] work in 1927 on rabbits supported Schiller's findings. At about this same date, Perlman[4] also demonstrated bladder regeneration in dogs.

Folsom, O'Brien, and Caldwell[2] in 1940 reported eight cases of subtotal cystectomy in the treatment of Hunner ulcer as well as experimental work on bladder regeneration in dogs. In the eight cases of Hunner ulcer there was one failure. This was thought due to pre-existing upper urinary tract infection. The authors believed that this operation was contraindicated in patients with serious upper urinary tract infection. The other seven patients had no urinary tract infections prior to operation and all had good results as shown by normal postoperative cystograms and relief of symptoms. The ages of the patients, all women, were thirty to sixty-five years. Symptoms had been present from four to twenty-seven years. Follow up examinations were made in one case seventeen years, in one case over eight years, and in the remainder from two years to a few months following operation. The cystograms in two cases showed bilateral ureteral reflux which caused no symptoms and which could not be explained.

In this excellent paper the authors also reported their results with subtotal cystectomy on eight adult female dogs. There were two deaths: one from peritonitis a week after operation and the other from distemper after three months. The other animals were sacrificed, and postmortem examinations showed complete re-establishment of bladder size in all cases. Histologic studies showed the process to be regeneration and not hypertrophy and hyperplasia.

From these studies it is evident that the human bladder as well as the bladder of dogs and rabbits has the power to regenerate. Additional proof of bladder regeneration will be evident from the following case report.

Case Report

Mr. E. P., aged sixty-six, was first seen on August 2, 1950, complaining of blood at the beginning of urination. Transurethral resection had been made elsewhere in 1935 and again in 1949 because of vesical neck obstruction. Both surgical procedures gave relief from the obstructive symptoms.

The patient stated that he voided with a good stream

Read at the annual meeting of the Southern Minnesota Medical Association, Rochester, Minnesota, September 10, 1951.

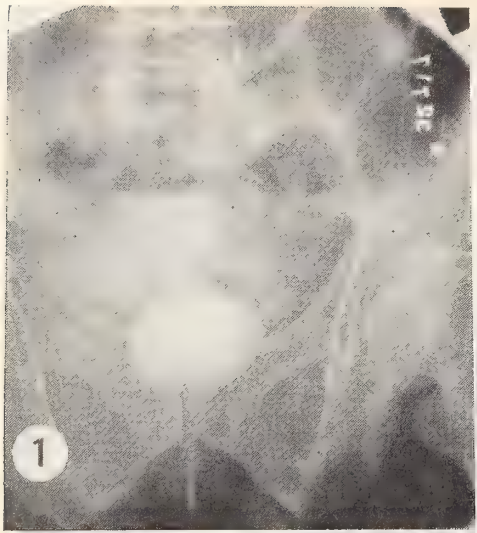

Fig. 1. Cystogram one week after bladder injury.

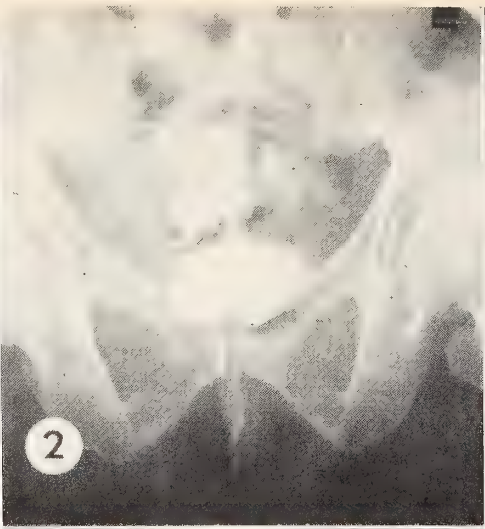

Fig. 2. Cystogram two weeks after bladder injury.

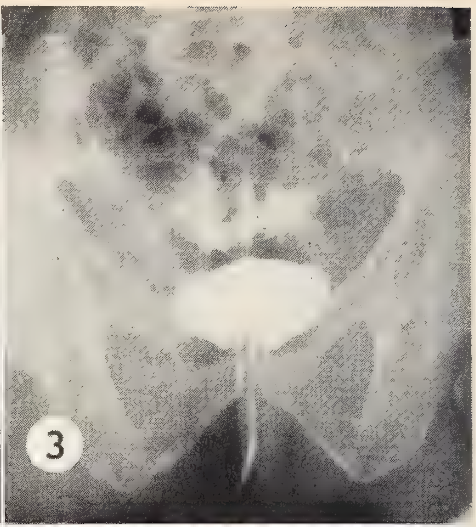

Fig. 3. Cystogram three weeks after bladder injury.

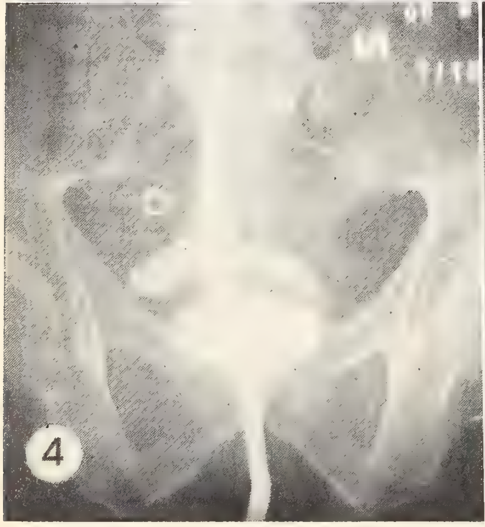

Fig. 4. Cystogram two weeks postoperatively.

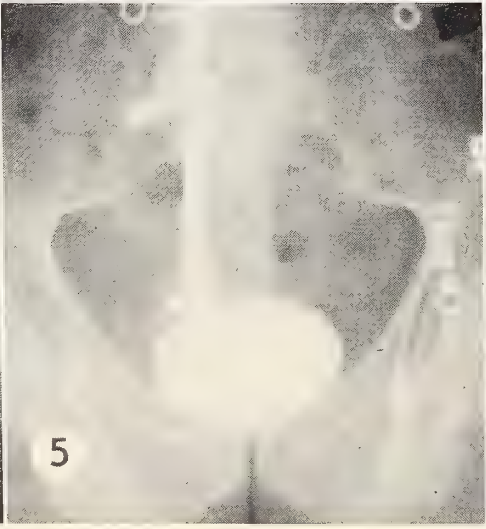

Fig. 5. Cystogram three weeks postoperatively.

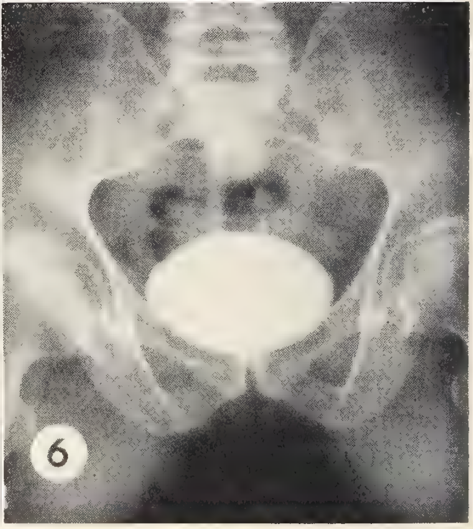

Fig. 6. Cystogram approximately one year postoperatively.

and had good control. There was no history of pain, colic, or bladder irritation. He voided four to five times a day and had no nocturia. His only complaint was occasional hematuria at the beginning of urination for the past two to three months. He stated that he had been cystoscoped elsewhere about six weeks previously with negative findings.

The family history and past history were essentially negative.

Physical examination revealed a well-developed, well-nourished sixty-six-year-old white man in no distress. Pulse was 80. Blood pressure was 130/80. Heart and lungs were normal. Abdominal examination was negative. On rectal examination some little remaining prostatic tissue was palpable, which was moderately indurated but not suspicious of carcinoma. There was no residual urine. The other details of the physical examination were within normal limits.

Laboratory Studies.—Blood: hemoglobin 14.5 grams (87 per cent), white blood cells 6,350. Urine: specific gravity 1.019, pH 6, albumin negative, sugar negative, microscopic centrifuged results—10 to 15 white blood cells and 20 to 30 red blood cells per high power field. Blood urea nitrogen 12 milligrams per cent. Acid phosphatase 1.5 units.

On August 3, 1950, a cysto-urethroscopic examination was carried out under spinal anesthesia. The bladder and prostatic urethra were normal, and nothing was found to account for the patient's complaint of initial hematuria. As the instrument entered the bladder, it was felt to come into contact with the posterior bladder wall—which is not unusual. Further examination found a small rent in the mucosa of the posterior bladder wall which appeared to be not important. The instrument was removed, a Foley bag catheter was inserted, and the patient was returned to his room.

Catheter drainage was continued and antibiotics were given. Within twenty-four hours there was complaint of fairly severe lower abdominal pain. The temperature rose to 100°. Generalized abdominal distention developed, which was controlled by nasal suction and intravenous fluids. X-ray examination of the abdomen showed a paralytic type of ileus.

The diagnosis was now obvious: peri-vesical extravasation of irrigating fluid (distilled water) incident to injury of the bladder wall by the entering cystoscope.

The nasal tube was removed in a few days. The daily temperature elevation was between 100° and 101°, reaching a high of 101.8° on the seventh day, after which it returned to normal and remained so for the rest of the hospital stay. The white blood count varied between 6,000 and 11,700. The blood urea nitrogen was never over 20 milligrams per cent. By the third postoperative day, a mass about the size of a large lemon could be palpated abdominally above the pubic arch extending over to the right side. In spite of adequate catheter drainage this mass did not appreciably decrease in size.

On the seventh postoperative day the first cystogram was made.

Figure 1 represents a cystogram made one week after bladder injury and shows the marked degree of extravasation.

Figures 2 and 3 represents cystograms made respectively two and three weeks after bladder injury. Extravasation is still present.

The day following the last cystogram a cysto-urethroscopic examination was made under spinal anesthesia. Fairly normal appearing mucosa over the vesical neck and trigone was seen. Beyond this the only semblance of bladder wall and mucosa was a narrow strip of intact mucosa, extending for a few centimeters upward from the vesical neck in position of the anterior wall. Beyond this the surfaces visualized were in the form of necrotic crevices and pockets. It was evident that most of the bladder wall had sloughed out.

After removal of the cysto-urethroscope, bimanual recto-abdominal examination was made, which disclosed a mass of infiltration in relation to the bladder floor continuous with the right pelvic wall and right side of the hollow of the sacrum.

Surgical exploration of the bladder was made forthwith. This confirmed the findings of the cysto-urethroscopic examination: almost complete bladder slough. All of the bladder that was intact was the vesical neck and trigone and a small strip of mucosa anteriorly. Specimens of tissue taken from various areas of the perivesical spaces and wound cavity showed only abscess wall—no bladder muscle. An F22 Robinson catheter was introduced through the urethra and was drawn down into the vesical neck—in which position it was affixed to the glans penis with a suture of braided silk. The silk cord attached to its upper end was brought out through the wound. An F24 Robinson catheter was put in place with its end close to the vesical neck, brought out as a suprapubic tube, and fixed to the skin with a suture of braided silk. Drains were placed in the prevesical space.

The patient's postoperative course was uneventful.

Figures 4 and 5 represent cystograms made respectively two and three weeks postoperatively.

The patient was discharged from the hospital on the twenty-second postoperative day after a forty-four-day hospital stay.

At the time of discharge, the patient was leaking a small amount of urine through the suprapubic wound but was voiding frequently with fairly good control.

Examination three weeks later found the suprapubic incision completely healed. There was normal urinary control with a bladder capacity of approximately 150 cc. By the ninth postoperative week, the pyuria had cleared and the bladder capacity was 200 cc.

The last examination was on July 26, 1951—almost one year after operation. The patient was well and had no complaints. Urination was normal and the urine was negative. Bladder capacity was 350 cc.

Figure 6 is a cystogram made approximately one year postoperatively.

So here we have a patient whose entire bladder except for the trigone and vesical neck had completely sloughed as the result of extravasation secondary to instrumentation and then regenerated completely so that one year later he had a completely normally functioning organ—added proof of the ability of the human bladder to regenerate.

This not too well known phenomenon of bladder regeneration offers many interesting possibilities for future bladder surgery. There is still much work to be done along this line, and time alone will bear proof of its final results.

References

1. Busachi. Zentralbl. f. med. Wissensch., p. 482, 1887.
2. Folsom, A. I.; O'Brien, H. A., and Caldwell, G. T.: Subtotal cystectomy in the treatment of Hunner ulcer. J. Urol., 44:650-666, 1940.
3. Kretschmer, H., and Barber, K. E.: Regeneration of bladder following resections. Tr. Sect. Urol., A.M.A., 106-127, 1927.
4. Perlman, S.: Demonstration zur Blasenregeneration. Ztschr. f. Urol., 21:621, 1927.
5. Ravisini, Carlo: Regeneration of bladder after extirpation because of tumor. Ztschr. f. Urol., 19: 601, 1925.
6. Schiller, Heliodor: Regeneration of resected urinary bladders in rabbits. Surg., Gynec. & Obst., 36:24, 1923.

RECORD NUMBER OF LIVE BIRTHS

Live births for 1951 may have topped the all-time high set in 1947, but U. S. Public Health Service is waiting for final returns before making formal announcement. The 1947 figure for live births was 3,818,000 and the 1951 unofficial total is 3,833,000 but PHS points out this is just an estimate and the totals are too close together to make any claims for 1951's birth rate without final figures. One of the factors contributing to the rise was the continuing decline in infant mortality. For the fifteenth straight year the infant death rate declined, reaching 28.8 per thousand live births last year.

MATERNAL AND INFANT MORTALITY IN A RURAL HOSPITAL

DOUGLAS L. JOHNSON, M.D.

Little Falls, Minnesota

BECAUSE of an apparently high birth rate of premature infants in St. Gabriel's Hospital, it was felt a study of the entire maternal and infant mortality problem in this 100-bed rural general hospital was indicated.

Review of the maternal deaths during the ten-year period of 1942 through 1951 is indeed encouraging. During this period, there were 6,068 live births, and only one maternal death. In this case, death was due to acute yellow atrophy of the liver, and occurred in 1943. These figures produce a maternal death rate over the ten-year period of .16 per 1,000 live births. The rate for the state of Minnesota for the year 1950 was .58 per 1,000 live births.

To maintain this record, adequate prenatal care, careful and proper conduct of labor, and use of antibiotics, blood and blood substitutes when indicated together with proper postpartem care are vitally necessary.

The second phase of this study consists of a review of the stillbirths and neonatal deaths during the two-year period of 1950 and 1951.

From Table I, it is seen that the stillbirth rate for the two years was 17.3 and 17 per 1,000 live births. These are higher than the rate for Minnesota for 1950 of 16.3.

From the same table it is observed that the total premature rate was 41.1 and 69.9 respectively. For the state as a whole, the rate was 58 per 1,000 live births.

It will be noted from the table that there were eight full-term and five premature stillbirths in 1950 and seven full-term and six premature stillbirths in 1951. Table II presents these cases individually.

A brief summary of the probable causes of death in the fifteen full-term stillbirths permits grouping them as follows:

1. Cases 1, 4, 11, and 13—prolapsed cords.
2. Cases 3, 5, 7, 10 and 15—diabetes mellitus, toxemia, or other disease causing intra-uterine death with a macerated fetus.
3. Cases 2 and 8—pelvic and fetal disproportion.

TABLE I. REVIEW OF STILLBIRTHS AND NEONATAL DEATHS

	1950	1951
Total deliveries	763	803
Fullterm births	732	748
Fullterm stillborn	8	7
Premature births	31	55
Premature stillborn	5	6
Premature live births	26	49
Total live births	750	790
Fullterm stillbirth rate	10.6/M live births	8.8/M live births
Premature stillbirth rate	6.6	7.6
Total stillbirth rate	17.3	17
Total premature rate	41.1	69.5

4. Cases 9, 12, and 14—ruptured uterus or ablatio placentae.
5. Case 6—aspirated amniotic fluid.

It should be noted that there was only one autopsy in this group.

The causes of fetal death could be attributed to pre-eclampsia in Cases 2, 6, and 8; to maternal bleeding in Cases 5 and 11; to erythroblastosis in Case 1 and to fetal malformation in Case 7. In Cases 3, 4, and 10 there was no apparent reason for fetal death. There were no autopsies in this group.

It will be noted in the group of full-term neonatal deaths that three were due to multiple congenital malformations; four to aspiration of amniotic fluid or atelectasis; two to erythroblastosis; and one to pneumonia. Three of these infants were delivered by cesarian section. The high autopsy rate in this group of cases is particularly noteworthy.

A quick survey of this table shows that only one of these premature deaths was attributed to malformations, one to erythroblastosis, one to diabetes mellitus, and two to anoxia (premature separation and one prolapsed cord). The remaining twelve of the seventeen premature neonatal deaths can merely be listed as due to prematurity. It will also be noted that there were only two autopsies in this group.

Table VI is presented to show the various problems to be considered in an attempt to lower the neonatal death rate. Although this series is too small to have much significance attached to the percentage of each cause, a comparison is

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Presented at staff meeting of St. Gabriel's Hospital, Little Falls, Minnesota.

TABLE II. FULL-TERM STILLBIRTHS
1950-1951

Case	Grav	Para	Weight	Pertinent Facts	Cause of Stillbirth
1	iv	iii	9 lb. 7 oz.	Forceps delivery	Prolapsed cord
2	iii	ii	11 lb. 11 oz.	Second stage one hour; mid forceps applied after version	Large infant, shoulder presentation
3	ii	i	5 lb. 12 oz.	Macerated fetus	
4	i	o	7 lb. 14 oz.	Large myoma extending 6 cm. below the external os	Prolapsed cord
5	i	o	6 lb. 3 oz.	Hypertension and albuminurea	Macerated fetus
6	ii	i	6 lb. 3 oz.	Normal pregnancy and delivery; half hour second stage; autopsy	Aspiration of amniotic fluid with hemorrhage in peritoneal, pericardial and pleural cavities
7	i	o	8 lb. 3 oz.	One premature previously died; no prenatal care	Diabetes mellitus; macerated fetus
8	ii	i	8 lb. 2 oz.	Previous delivery high forceps; baby OK; delivery breech; turned in office on two occasions. High forceps attempted Delivery by podalic version and breech extraction	Pelvic disproportion and prolapsed cord
9	iv	iii	7 lb. 6 oz.	Porosection	Ablatio placenta; uterine apoplexy
10	ii	o	9 lb. 7 oz.	Previous stillbirth	Diabetes mellitus; macerated fetus
11	ii	i	6 lb. 4 oz.		Prolapsed cord
12	iv	ii	6 lb.	Placenta previa and previous cesarian section Porosection	Ruptured uterus at 8 mos. gestation
13	iv	iii	7 lb. 4 oz.	Delivery by version, breech extraction	Shoulder presentation, prolapsed cord
14	xi	viii	7 lb. 1 oz.	Two previous abortions; cesarian section	Ablatio placenta
15	xii	x	6 lb.	All previous pregnancies normal	Macerated fetus

TABLE III. PREMATURE STILLBIRTHS
1950-1951

Case	Grav.	Para	Weight	Gestation Weeks	Pertinent Facts	Cause of Stillbirth
1	iii	i	4 lb. 12 oz.	31	Previous erythroblastotic baby recovered Increase in Rh antibody titre Delivered macerated fetus	Erythroblastosis
2	iii	o	4 lb. 3 oz.	31	Two previous stillborn and several miscarriages	Pre-eclampsia
3	iv	i	5 lb. 3 oz.	35	Two abortions caused by retroversion Breech presentation	Cause undetermined
4	v	iii	4 lb. 4 oz.	40	First delivery stillborn Macerated fetus	Cause undetermined
5	iv	o	2 lb. 10 oz.	26	Previous abortions	Bleeding entire pregnancy
6	i	o	1 lb. 9 oz.	33	Pre-eclampsia Macerated fetus	Pre-eclampsia
7	i	o	4 lb. 8 oz.	35	Macerated fetus	Hydrocephalus
8	i	o	4 lb. 1 oz.	37	Twins (one alive)	Pre-eclampsia
9	vii	v	2 lb. 13 oz.	28	One abortion	Macerated fetus
10	ii	o	2 lb. 11 oz.	26	One previous miscarriage (deformed fetus)	Macerated fetus
11	i	o	5 lb. 2 oz.	40		Ablatio placenta

TABLE IV. FULL-TERM NEONATAL DEATHS
1950-1951

Case	Grav	Para	Weight	Age at Death	Pertinent Facts	Cause of Death	Autopsy
1	i	o	7 lb.	¾ hr.	Cesarian section—Gen. anesthesia	Aspiration pneumonitis	Yes
2	v	iv	7 lb. 4 oz.	4 hrs.		Large diaphragmatic hernia All abd. contents in chest	Yes
3	iv	ii	8 lb. 13 oz.		Previous stillborn; cause undetermined	Erythroblastosis fetalis (Died at University)	Yes
4	ii	i	7 lb. 2 oz.	1 hr.	Mild toxemia, Cesarian section, local anesthesia, follow by pentothal and ethylene	Asphyxia in utero	Yes
5	i	o	7 lb.	10 min.		Complete absence of diaphragm Abd. contents in chest cavity	Yes
6	iii	ii	6 lb. 4 oz.		No history of previous trouble	Hemorrhagic disease of the new-born	Yes
7	v	iii	5 lb. 9 oz.	36 hrs.	Previous ectopic pregnancy Cesarian section for placenta previa centralis at 8 mo.	Bilateral atelectasis due to aspiration of amniotic fluid	Yes
8	viii	vi	7 lb.	10 hrs.	One baby died of atelectasis	Atelectasis	No
9	i	o	6 lb. 11 oz.		Protruding eyes, no eyelids, no tongue, vocal cords in oral pharynx, extra digits on hands and feet.	Multiple malformations	No
10	viii	ii	7 lb. 8 oz.		Pt. over term. Instrumental rupture of membranes. Previous delivery stillborn, overdue.	Purulent pneumonitis	Yes

made with similar causes over the entire state. It will be noted that the percentages in each group in this hospital are not significantly different from those over the state. The neonatal death rate here over a two-year period has been 16.2 per thousand live births as compared with 18.9 for the state as a whole.

The conclusion inevitably reached from this study up to this point is that prematurity is the greatest problem in stillbirths and neonatal deaths. Careful consideration of the previously listed cases, however, reveals that the problem is probably not as great as it appears on the surface. It will be noted in this series that very few

TABLE V. PREMATURE NEONATAL DEATHS
1950-1951

Case	Grav	Para	Weight	Gestation Weeks	Pertinent Facts	Age at Death	Cause of Death	Autopsy
1	iv	ii	5 lb. 7 oz.	37	Previous stillborn. Medical induction because of increasing titre.	3 days	Erythroblastosis	Yes
2	xi	vii	1 lb. 2 oz.	22	Several previous abortions	30 min.	Prematurity	No
3	iii	ii	3 lb. 11 oz.	30	Premature separation of placenta. Transverse position.	3 hrs.	Premature separation of placenta. Anoxia.	No
4	xvi	x	1 lb. ½ oz.	22	Three previous abortions. Two previous premature del.	12 min.	Prematurity	No
5	i	o	3 lb. 1 oz.	26	No prenatal care.	4 hrs.	Prematurity	No
6	iii	i	13 oz.	26	Twin	8 hrs.	Prematurity	No
7	iii	i	12 oz.	26	Twin	8 hrs.	Prematurity	No
8	viii	vii	3 lb.	31	Breech, prolapse of cord.	½ hr.	Prolapsed cord.	No
9	ii	o	1 lb. 13 oz.	26	One previous stillborn. Mother diabetic, uncontrolled diet and insulin.	2 hrs.	Diabetes Mellitus	No
10	i	o	4 lb. 3 oz.	40	Clubbed feet, corneal opacity of left eye, agenesis of both kidneys, agenesis of rt. ventricle, incomplete separation of aorta and pulmonary artery.	25 min.	Multiple deformities.	Yes
11	iv	iii	2 lb. 14 oz.	28	One previous premature with death of infant.	4 hrs.	Prematurity	No
12	iv	i	3 lb. 4 oz.	31	Two abortions. Membranes ruptured at 4 months. Bleeding frequently since start of pregnancy.	36 hrs.	Prematurity	No
13	i	o	2 lb. 8 oz.	26	Twin. Hydramnios. Low forceps.	9½ hrs.	Prematurity	No
14	i	o	2 lb. 11 oz.	26	Twin. Hydramnios. Mid forceps.	9½ hrs.	Prematurity	No
15	vi	v	3 lb. 11 oz.	30	Membranes ruptured one month prior to delivery.	2 hrs.	Prematurity	No
16	ii	i	4 lb. 1 oz.	31	Bleeding during pregnancy.	10 hrs.	Prematurity. Marginal placenta previa.	No
17	i	i	1 lb. 2 oz.	20	Webbing of toes of right foot, absence of all toes of left foot.		Prematurity	No

TABLE VI. NEONATAL DEATHS 1950-1951

	Number Cases	Percent St. Gabriel	Percent State
Prematurity	11	44	35.5
Congenital Malformation	4	16	16.6
Birth injuries			17.5
Atelectasis	4	16	11.7
Pneumonia	1		
Asphyxia in utero	3		
Hemorrhagic disease of newborn	3	24	18.7
Diabetes Mellitus	1		
Death rate		18.1/M live births	18.9/M live births

autopsies were performed upon prematures, either in cases of stillbirth or neonatal death. This is unfortunate, and probably results in prematurity being listed as the cause of death in many cases where congenital malformations, atelectasis or other actual pathological conditions exist but are unrecognized and unproved. In the future, therefore, the high rate of autopsies that has been achieved in the full-term group should be carried over to the prematures, so that these deaths may be properly classified.

While it is difficult to list factors that will definitely lower the rate of premature deliveries, certainly adequate prenatal care is the best approach to the problem. Included in prenatal care, of course, are medical care, dietary control, proper housing, working conditions, recreational factors, and an adequate rest program. Studies that have been done on racial, economic, and sociological influences affecting the rate of premature births, indicate that if the above factors listed as adequate prenatal care are ideal, the premature rate will be significantly less.

The conduct of labor in the case of a premature delivery can definitely influence the survival rate of the premature infant. Since these infants are sometimes overly sensitive to sedation and general anesthetics given to the mother, these medications should be used cautiously. It is further known that these small infants are less able to withstand the trauma of a difficult second stage of labor. Therefore, the current teaching is to perform an episiotomy and deliver by forceps in many cases.

In this hospital these babies are placed in an incubator in the delivery room. Clearing of the respiratory passages is essential. Oxygen resuscitators are available in the delivery room. The presence of emergency bronchoscopic equipment and trained personnel is highly desirable and might possibly eliminate some of the respiratory deaths.

The actual nursing care and feeding program in this hospital is carried on according to the program recommended by the Minnesota Department of Health. The premature babies are attended only by highly trained personnel. This training program is a continuous one. Besides the faculty of St. Gabriel's Nursing School, specialists in the field of premature nursing have been called in from time to time to augment the training of the local faculty. Oxygen is administered from birth until the infant has progressed enough to be maintained without it. These babies are kept in incubators until they weigh at least five pounds. The premature survival rate is shown in Table VII.

TABLE VII.

1950

Total Premature Live Births

2 weighed less than 1 lb.; both died about 8 hrs. after birth
2 weighed between 1 and 2 lbs.; 1 lived 15 min.; the other lived 50 min.
1 weighed between 2 and 3 lbs.; discharged on the 79th day
5 weighed between 3 and 4 lbs.; 3 lived 30 min., 2 hrs. 40 min., and 4½ hrs,. respectively; 1 was discharged after 40 days; one after 85.
7 weighed between 4 and 5 lbs.; all lived.
9 weighed between 5 and 5½ lbs.; 8 lived, 1 died of erythroblastosis fetalis on 3rd day.

1951

Total Premature Live Births

1 weighed between 1 and 2 lbs. and died after two hours.
4 weighed between 2 and 3 lbs.; 2 (twins) died after 9½ hours; 2 were discharged after 44 and 51 days, respectively.
6 weighed between 3 and 4 lbs.; 1 died after 2 hours; 1 died after 36 hours; 4 were discharged after 29, 30, 48, and 51 days, respectively.
20 weighed between 4 and 5 lbs.; 1 died after 25 min.; 1 died after 10 hrs.; 18 lived.
17 weighed between 5 and 5½ lbs.; all lived.

Continuation of the high survival rate in the future assumes the continuation of the present excellent nursing care under supervision of the medical staff.

Congenital malformations are responsible for 16 per cent of neonatal deaths. More accurate diagnosis will undoubtedly increase this percentage. Nevertheless, the situation is not without some hope. Definite association has been shown between Rubella during pregnancy and congenital malformations. Nutritional factors certainly have some bearing on the subject. Physicians in rural practice will depend on the centers of learning for more information on this subject in the future. Hereditary factors undoubtedly play a large part. One of the neonatal deaths reported in Table IV was caused by a complete absence of the diaphragm. Recently, the wife of the mother's brother delivered an infant with the same defect. The recurrence of this defect in the same family would seem to be an hereditary defect rather than an accidental recurrence.

Birth injuries as a cause of stillbirths and neonatal deaths certainly are among the preventable causes of death, and one which should largely be eliminated. In the present series, there were two deaths that were at least partially caused by disproportion between the pelvis and the size of the fetus. Adequate measurement with x-ray mensuration in borderline cases and in those with obviously small measurements are easily obtained and should be required. In borderline cases a test of labor with prior preparation for section if necessary is probably the procedure of choice. Careful consideration should be given to the measurements of the mid-pelvis, since often the head may start to descend into the pelvis only to be held up when the operator may expect continued progress. Only by adequate measurements prior to the time of delivery may this situation be anticipated and injury or death to the baby be averted.

Consultation with specialists trained in obstetrics cannot always be obtained in this hospital because of the emergency nature of many of the complications and the distance to large medical centers. Nevertheless, in any case of inadequate pelvic measurements, with proper planning these patients may be seen by consultants so that help may be obtained in determining the type of delivery suitable.

In this group of cases, prolapsed cord has caused several stillbirths. This is always a serious complication and, according to DeLee it carries a 40 to 50 per cent mortality if treated and 80 per cent if untreated. The cord is not always palpable rectally, and if suspected, a vaginal examination should be done. The best treatment is immediate delivery of the child. If the cervix is not completely dilated, replacement of the cord above the head must be done. A vaginal bag or gauze pack may be used to advantage, together with the Trendelenburg position. Version may be used if the cervix is sufficiently dilated. Occasionally if the baby is in good condition, cesarian section may be indicated, particularly in older primiparae.

Atelectasis has previously been mentioned. Removal of fluids from the respiratory tract by suction with a catheter is usually sufficient. Bronchoscopy is highly desirable in some cases.

Pneumonia occurred in one case in this series. Antibiotics administered to those patients for whom labor is induced by rupture of the membranes is of value in preventing pneumonia in the infant.

Erythroblastosis fetalis is a definite hazard to those infants whose mothers have become sensitized. Proper prenatal care plus adequate transfusions seem at this time to be the best way of saving these infants. In the event the antibody titre is increasing, delivery two weeks prior to term is advisable. There is some disagreement on this point since the hazard of prematurity is added to that of erythroblastosis.

Summary

The maternal mortality at St. Gabriel's Hospital has been reviewed for the past ten-year period. The stillbirths and neonatal deaths have been reviewed for the past two years.

From this study, it can be concluded that this hospital is an extremely safe place for women to undergo childbirth.

From the stillbirth and neonatal standpoint, it compares about equally with the state as a whole.

As a result of efforts of some of the members of the medical staff, an eight weeks' course, one night a week, is now under way at this hospital. The course is being jointly sponsored by the Minnesota Department of Health and the Minnesota State Medical Association. The faculty consists of faculty members from the University of Minnesota and other obstetricians from the Twin Cities area. All the members of the medical staff of St. Gabriel's Hospital and several physicians from surrounding communities have attended.

The combined efforts of all these individuals, the nursing staff and administration of St. Gabriel's Hospital, should definitely result in further improvement in the stillbirth and neonatal death rate in this and other communities.

Bibliography

1. Baumgartner, L.: Nation-wide plan for reduction of premature mortality. J.A.M.A., 146:893-896.
2. Chesley, A. J.: Maternal, infant and childhood mortality, 1950. Pp. 6-13, Minnesota Department of Health Report, May 1, 1950.
3. DeLee, J. B., and Grennhill, J. P.: The Principles and Practice of Obstetrics. 8th Edition, pp. 651-659. Philadelphia: W. B. Saunders Company.
4. Githens, J. H., Jr., and Lubchenco, L. O.: Care of the premature infant. Postgrad. Med., 10:62-64 (July) 1951.
5. Gordon, J. E., and Ingalls, T. H.: Death, defect and disability in prenatal life. Am. J. Pub. Health, 38:66-74 (Jan.) 1948.
6. Rosenfield, A. B., and Emerson, W. S.: Infant mortality in Minnesota, 1950. Minnesota Med., 34: 546-550 (June) 1951.
7. Simons, E. J.: Maternal and neonatal deaths. Staff Proceedings, St. Gabriel's Hospital, March 14, 1950.
8. Simpson, J. W., and Geppert, L. J.: The physician's obligation to the fetus. Am. J. Obst. & Gynec., 62:1062-1070, 1951.

CHANGES IN THE MEMBERSHIP AND FELLOWSHIP STRUCTURE OF THE AMERICAN MEDICAL ASSOCIATION 1949-1952

1918 to 1949 Prior to 1950, and since the year 1918, all physicians who were active members of their State Society were non-dues paying members of the American Medical Association.

Of the 144,211 members of the A.M.A. in June, 1949, 77,723 were listed as fellows. Fellows paid dues to the A.M.A. and received *The Journal A.M.A.*

1949 The House of Delegates of the A.M.A. assessed all members of the A.M.A. $25.00, but this assessment was voluntary and not compulsory. This was the only *assessment* made.

1950 There was no assessment in 1950. The A.M.A., for the first time, set the dues for membership in the A.M.A. at $25.00 a year. If these dues were not paid by the end of the year the member was dropped for non-payment; before he could be reinstated, it was necessary for him to pay the delinquent year's dues.

The 1950 dues did not include a subscription to *The Journal A.M.A.*

A member in 1950 again had to pay fellowship dues to receive *The Journal A.M.A.*, or could subscribe to it separately.

1951 The membership dues in the A.M.A. in 1951 were $25.00 and included a subscription to *The Journal A.M.A.* Fellowship dues were reduced to $5.00 but no longer included a subscription to *The Journal A.M.A.*

1952 The same as 1951, except that there are no fellowship dues and fellowship cards are not being issued. Fellowship will probably be abolished after the Annual Meeting of the A.M.A. in June, 1952.

Case Report

ASPIRIN POISONING IN CHILDREN

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SERIOUS indictment is due the medical men of my generation for permitting the present casual attitude toward the indiscriminate use of salicylates to exist among the general population. We seem to have forgotten that in excessive doses it is a potent poison without an antidote and, once rampant, extremely difficult to combat. Now that in some form it is on every bedside table and in every medicine cabinet, frequently camouflaged and flavored so as to be most attractive to children, it is small wonder that instances of serious poisoning are being so frequently encountered by pediatricians. Aspirin, while not the most poisonous, is the most widely used salicylate compound and therefore figures most frequently, as in the present episode.

About 2:30 one afternoon, two sisters, aged two and one-half and four years, were found to have consumed from one-half to three-quarters of a bottle of aspirin. Originally, it had contained 100 5-grain tablets. Twenty minutes later they were at the Children's Hospital.

Large quantities of granular material resembling disintegrating aspirin tablets were removed from the stomach of the smaller child by repeated washings. When the mother revealed for the first time that the older girl had also been involved, a lesser amount of the same substance was washed from her stomach. Both appeared in the best of spirits after the manipulations, and the parents had to be persuaded to leave them in the hospital for observation.

Each ate a regular supper and nothing unusual was noticed until the younger one vomited her entire meal at 7:30 p.m. There was blood in the vomitus. The older child appeared normal at this time though later she did develop signs of mild poisoning.

When the vomiting, which had been projectile, was discovered the patient was found to be unconscious and extremely irritable, as evidenced by constant crying and ceaseless co-ordinated but purposeless movements of the entire body. The pupils were widely and equally dilated. The skin of the face and neck was peppered with small spots of ecchymosis. Extreme hyperpnea was present, and the mucous membranes and skin were a brilliant red, bringing to mind the vivid scarlet of carbon-monoxide poisoning. The child was soaked with perspiration. This critical picture persisted stubbornly in spite of all our efforts. Thirty-six hours passed before one could feel that recovery was assured.

Treatment was based upon the concept that in salicylate poisoning the basic assault is against the respiratory center and that it consists of a primary stimulation leading to respiratory alkalosis which is induced early and is maintained until elimination of the poison can occur. This takes place primarily through the kidneys. At some point, in the fatal cases at least, the alkalosis may be replaced by an acidosis. This poses a complicated clinical problem.

Oxygen in high concentration was administered until consciousness returned. Two cubic centimeters of parathyroid extract were given at once to minimize tetany and avert convulsions. A high fluid intake was essential and, since it was not held by mouth, it was given by clysis, both intravenous and subcutaneous, as one-half Ringer-lactate and one-half 5 per cent glucose in distilled water. Included with the clyses were the soluble B vitamins and ascorbic acid. Vitamin K was given repeatedly to maintain adequate prothrombin levels and prevent hemorrhage.

Shortly after the start of symptoms, the CO_2 combining power of the blood was 34 vol. per cent. The next morning it was 26. These results fitted the concept of respiratory alkalosis. Later, after the crisis was over, a value of 42 vol. per cent was obtained, which is normal in an infant.

For several days all samples of urine were examined as to pH, the presence of ketone bodies and salicylates. At no time did the pH vary beyond the limits of 5 and 6. This did *not* fit the concept of hyperventilation. Whereas consciousness returned early on the third day, salicylates continued to be excreted throughout the fifth day and ketone bodies were constantly present for another twenty-four hours.

Urinary glucose was present in substantial amounts throughout the fifth day, and on the second day, while the patient was still unconscious and while large amounts of acetone were appearing in the urine, the blood sugar was 130 mg.

Kidney irritation, as indicated by the presence of albumin, casts and both red and white cells, persisted until shortly before the patient was discharged on the eighth day. However, blood pressure and urea nitrogen values were normal.

The thirty-six-hour period from the beginning until the end of unconsciousness was as packed with confused anxiety as any I shall remember. Presumably the patient was in alkalosis, but clinically she looked like a person in severe acidosis. What tests were done carried no conviction either way and could not, even though it had been possible to regard them as anything more than a static measurement in a rapidly changing sequence. The possibility of an irreversible and fatal upset in acid-base equilibrium seemed constantly present, but whether alkalosis or acidosis was most to be feared was totally unclear. And that seems to package neatly just about all that can be gleaned, of immediate clinical value, from the vast accumulation of data dealing with severe and fatal salicylate poisoning.

In a large percentage of the fatal cases the actual cause of death has been obscured because of the presence of some previous organic disease. Perhaps we owe our good fortune here to the fact that our patient was so young and so organically sound.

Experiences such as this, and they are not rare, bring into sharp focus a neglected responsibility of the medical profession to make the lay public aware of the dangers in half-emptied aspirin bottles just lying around—just lying around (that is) where children run around.

Read before the Ramsey County Medical Society, Saint Paul, Minnesota, April 28, 1952.

NOTES ON THE HISTORY OF MEDICINE IN WASECA COUNTY PRIOR TO 1901

B. J. GALLAGHER, M.D., and J. F. LYNN, M.D.

Who owned the land that is now Waseca County, in fact all of Minnesota west of the Mississippi River, previous to the coming of the first white settlers? Of course, the United States acquired it from France in the Louisiana Purchase in 1803, but it is not likely that the Indians who lived here ever heard of the Louisiana Purchase, nor even of France. They must have considered that they owned it. The Federal Government paid at least lip service to this claim in 1851 when, at Traverse des Sioux and at Mendota, treaties were made with the Indians by which for an eventual payment of two cents* an acre, they gave up millions of acres of excellent land, and consented to move west to reservations along the Minnesota River. After the treaties were ratified, land offices were opened and the land between the Mississippi and the reservations was legally opened to settlement. The lands in southeastern Minnesota closest to the Mississippi naturally were settled first, but by 1853 there were settlers along the Straight River at the site of the present city of Owatonna. For a wonderfully comprehensive history of the process of settlement of southeastern Minnesota during 1851 and after, as well as the early history of medicine in Minnesota, the reader is referred to the articles by Nora Guthrey, which ran serially in Minnesota Medicine from 1945 to 1951, on the "History of Medicine in Houston, Fillmore and Olmsted Counties Prior to 1900."

Previous to February 20, 1855, the western two-thirds of what is now Steele County and all of what is now Waseca County formed part of Rice County. On that date Steele County was created by the Territorial Legislature. The territory embraced in the new Steele County consisted then of all the present Waseca County and the western two-thirds of the present Steele County. The eastern one-third (present east tier of four townships) of Steele County was then a part of Dodge County. Owatonna was then only one or two years old, and was the county seat, but was unfavorably located to retain this position as it was very near the eastern border of the county. In February, 1856, the Territorial Legislature detached the western tier of townships from Dodge County and made them a part of Steele County. On February 27, 1857, an act was passed by the legislature creating Waseca County by cutting off from Steele County a strip eighteen miles from east to west. This resulted in the three counties of Dodge, Steele and Waseca, all of equal size, eighteen miles from east to west and twenty-four miles from north to south. It also assured to Owatonna the retention of the county seat of Steele, since it was now more nearly in the center. Strangely enough, many of the comparatively few settlers in the new county of Waseca were not in favor of the new arrangement because, besides being the most sparsely settled, a considerable portion of the new county (about one-fifth) was in the Winnebago Indian Reservation and therefore not open to settlers.** The settlers were not anxious to take over the expense of starting a new county while the population was so small.

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*The treaty stipulated 10c per acre.

The county seat was located at Wilton until such time as an election could be held. The Territorial Governor (Gorman) appointed three commissioners, a sheriff, a register of deeds, and two justices of the peace to serve until the first election. There were of course as yet no townships, but five voting districts were set up and an election was held on the first Monday in June, 1857. At this election a full slate of county officers was elected and Wilton, the largest village in the county, was chosen as county seat. The town of Waseca was not to come into existence until ten years later, in the fall of 1867, when the Chicago and Northwestern Railroad reached that area. Wilton was four and a half miles southwest of Waseca, and since the railroad missed Wilton, Waseca quickly outgrew it. In 1869 another election was held and Waseca became the county seat. During the next few years the old town of Wilton gradually went out of existence.

The first settler in the present Waseca County (then still a part of Rice County) was Mr. Asa G. Sutlief, who came with his wife and two children in a covered wagon in August, 1854. With him he had sixty sheep and about thirty head of cattle. Three hired men accompanied him. He had the choice of any land that he wanted. He selected some land on a bend of the Le Sueur River, at a point about four miles south of the site, also on the river, which within a year or two was to become the village of Wilton. One speculates that he selected this site because it had water and wood and an abundance of rich prairie land to the south and west. He erected a cabin, broke up a few acres of sod, put up some hay and hired a man to stay there to care for the stock. In November he and his family returned to Wisconsin. He came back in January of 1855, his family joining him later in the year. During 1855 and especially during 1856, many more settlers came and, as previously stated, in 1857 the County of Waseca was set off from Steele County.

The Winnebago Indians were not as warlike as the Sioux and did not join in the outbreak against the white settlers in 1862. Nevertheless, the Government moved them west to Montana in 1863.† That part of Waseca County which had been in the reservation, was then thrown open to settlement. Many new settlers came from Wisconsin and other places that year. The early settlers in the county were largely German, Norwegian, Swedish and Irish, with a good sprinkling of "Yankees" from New England and other places in the east.

Medical History

A state territorial medical society was organized in 1853 but held only two meetings. It was reorganized in 1856, but seems to have folded up again. The present State Medical Society was organized (or reorganized) in 1869. Before that there was no medical practice act, and anyone who claimed to be a doctor was not disputed. On March 4, 1869, the legislature passed a lax medical act requiring a diploma as evidence of fitness to practice medicine, but at that time there were many homeopathic and eclectic as well as regular (allopathic) schools and associations, which could and did issue diplomas freely. Often the diploma did not signify much training or capacity to practice medicine. As the act seemed to compound the evil it was repealed in a year or two. Then in 1883 the first real medical practice act was passed and under it the Board of Regents of the University was the medical board. Licenses, to the number of 1501, were granted by this

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**The Indian Reservation covered two whole townships and part of two other townships.

†The movement started officially on May 9, 1863, with three steamers taking the Indians as far as Fort Snelling. There they gradually moved to the region of Omaha. This is not perfectly certain, however.

Board, 1325 of them to holders of diplomas from recognized medical schools, 33 after examination and 143 by "Exemption Certificates," these doctors having produced evidence that they had practiced in Minnesota for five years or more prior to the passage of the act.

In 1887 a new act was passed providing for a nine-man examining board, as diplomas from supposedly reputable schools were often held by incompetent men. In and after 1887 new applicants for licenses had to take an examination, except that a few who had not complied with the law of 1883, but had five or more years of practice were licensed "by exemption."‡

In 1890, after this Board had been functioning for three years, it published an "Official Register of Minnesota Physicians, 1883-1890" listing all doctors in active practice at that time. It gave the number of each man's license, by what method he was licensed, his school, date of graduation, whether "regular" or "homeopath" et cetera, as well as the date his certificate was issued. The following doctors were listed as practicing in Waseca County, during at least some part of that time (1883-1890):

License No.	*Name*	*School of Practice*	*Location*
381	Christie, Geo.	Regular	Waseca
787	Craig, R. O.	Regular	Janesville
380	Cummings, Damon S.	Regular	Waseca
1119	Hubbard, Wm. E.	Regular	Waseca
511	Hunt, M. V. (listed as having left the state recently)	Regular	Waseca
1053	Hutchinson, A. M. (listed as having moved from state)	Homeopath	Waseca
796	Lang, Wm. A.	Regular	New Richland
746	Remington, Chas. I.	Regular	Alma City
1317	Swartwood, Frederick A.	Regular	Waseca
549	Taylor, Martin J.	Regular	Janesville
Exemption	Young, H. J.	Regular	Waseca

Under this act of 1887, it was also required that each doctor register his license certificate with the Clerk of Court in the county where he practiced. This apparently was not universally done at first as the names of at least three or four doctors who are known to have practiced in Waseca County are missing from the following list, procured from the records of the Clerk of Court up to and through 1900:

Date of Filing	*Doctor's Name*	*Date of Certificate*
12- 5-1883	Damon S. Cummings	11-24-1883
1- 2-1884	M. V. Hunt	12-28-1883
1- 2-1884	Martin J. Taylor	12-31-1883
1-26-1884	Charles Remington	1-16-1884
4- 5-1884	David W. Horning	1-28-1884
4-14-1884	William A. Lang	2- 6-1884
6- 5-1884	John Nutting	5-28-1884
5-15-1885	Attila M. Hutchinson	5-13-1885
3- 8-1887	Frederick A. Swartwood	3- 7-1887
3-19-1888	Eugene Hubbel	2-18-1884
7-12-1890	Frank W. Green	3-12-1887
6-10-1892	Fred N. Hunt	4- 8-1884
10-18-1892	Joseph Parker Corry	10- 7-1892
5- 3-1893	Clinton F. Cook	7- 8-1892

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‡The law provided that the applicant present satisfactory credentials of having graduated from a reputable medical school and proof of having practiced in the State of Minnesota prior to July 1, 1887. The period of five years' practice may have had a part in granting a license though the law does not mention it.

7-12-1894	James B. Lewis	11- 7-1885
7-23-1894	Delos Dewitt Smith	7-10-1894
8- 6-1895	Edwin J. Batchelder	10- 6-1895
5-11-1896	James H. Bowers	3-30-1885
6-17-1896	Franklin T. Poehler	6- 9-1896
7-28-1896	H. P. Dredge	6- 9-1896
No Date	C. E. Backman	4-14-1896
3-10-1896	Dennis J. McMahon	1-14-1896
7- 8-1899	Wm. Davidson Rea	6-16-1898
8-15-1899	Wm. A. Chamberlain	3-15-1883
8- 7-1900	L. E. Kuchenbecker	10-12-1893

The following doctors are known to have practiced at the time or after the time of the law of 1887, but apparently never registered with the Clerk of Court:

R. O. Craig
Henry J. Young
George Christie
R. N. Sackett
W. L. Sterns
J. A. Reynolds
Wm. E. Hubbard
Norman C. Davis

The following doctors are known to have practiced in the county and either died or left the county, previous to the medical practice act of 1887:

William Murphy
M. S. Gove
B. M. J. Conlin
Jacob C. Brubaker
F. C. Peck
H. T. Cobb
L. D. Pierce
L. D. McIntosh
Dr. Palmer

Some who practiced previous to 1901 and were still in practice in the county after 1901 registered later and are as follows:

6-16-1902	James F. Lynn	10-11-1900
6- 1-1909	J. J. O'Hara	10-11-1898
5-16-1917	Henry G. Blanchard	6-10-1897

Undoubtedly there were many practitioners of one kind and another who came and went in the early years of whom there is no record available. The early settlers were glad to avail themselves of anyone who thought he could help and was willing to try.

The charter of the present Waseca County Medical Society is dated 1904. However, the June 16, 1869, issue of the *Waseca News* contained the following article:

Medical Society

"Doctors Craig, McIntosh, Brubaker, Young and Gove met at Waseca, June 5, 1869, and organized a medical association, to be known as the Waseca County Medical Society. Dr. R. O. Craig of Janesville was elected president, and Dr. D. L. McIntosh of Waseca was elected secretary. Drs. Gove and McIntosh were elected delegates to the State Medical Society. The association adjourned to meet the first Tuesday in July."

How long this society existed is not known, but apparently it quit functioning long before 1904. If others existed in the interim no mention has been found of them.

Many of the doctors belonged to the Minnesota Valley Medical Society, which was organized in 1881, and the Southern Minnesota Medical Society which started in 1892. They merged in 1913 as the present existing Southern Minnesota Medical Society.

No regularly established hospital is known to have existed in the county until

February, 1922, when the Waseca Memorial Hospital, newly constructed, was opened for occupancy with a capacity of twenty-five beds and ten bassinets. For a few years before that local doctors occasionally took patients to the Owatonna City Hospital for operation. After about 1884, when surgery began to develop, surgeons from out of town, usually Mankato or Rochester, sometimes were called in for emergency operations in the home or in the doctor's office.

The first regular physician in Waseca County has always been said to have been M. S. Gove, who came to Wilton in 1858, and who died in Waseca in 1874. However, William Murphy came to Wilton in 1857, in poor health, and he died early in 1859. He probably never practiced very much and is known to have taught for a time in a private school, the "Wilton Seminary," which opened in 1858 and closed for all time in 1861. The biographies of the doctors, such as are available, are listed below in alphabetical order:

Clarence E. Backman, a homeopathic physician, was graduated from Barnes Medical College, St. Louis, in 1894. His certificate to practice in Minnesota was dated April 14, 1896. He was in Waseca for a year or two after that, but by 1898 he had moved to Minneapolis, where he had an office at 2423 Central Avenue N.E. He was there until about 1902, when he located in Evansville, Douglass county.

Edwin J. Batchelder was born in Osceola, Wisconsin, April 17, 1866. The family moved to Stillwater, Minnesota, when he was a small boy. His father was a boat builder and as a boy in the grades the young Ed had to go right home after school, change his clothes, go down to the boatyard and spin oakum. As he got older, he spent his summers painting boats. Later, after some college work, he taught Latin in the Stillwater High School, from which he had graduated earlier. He studied medicine at the University of Minnesota, graduating in 1895. At one time, during his student days, he won a set of books donated by the Mayo Brothers as a prize in surgery.

He started practice in New Richland, Waseca County, in the fall of 1895, and spent all but the last two years of his life there. In 1898, he was elected Coroner and several times he was president of the Waseca County Medical Society.

A few years after coming to New Richland he married Miss Lillie Lofty of that town and they were the parents of two daughters. The older one, Alice, became a medical technician and worked in hospitals in Memphis, Tennessee, and Newark, New Jersey. She married Lester Johnson, a chemical engineer, and they have two boys and one girl. They live in Loripoc, California. The younger daughter, Helen, married Robert Fisher of Anderson, Indiana, and they have three daughters. Mr. Fisher is with an advertising agency in New York City, and they live in Plainfield, New Jersey.

In 1918 Dr. Batchelder moved to Minneapolis, where he became associated in practice with Dr. F. W. Schlutz, an old New Richland boy, who was then an eminent children's specialist on the faculty of the University of Minnesota. Dr. Batchelder died after a short illness on September 30, 1920, at Abbott Hospital, Minneapolis. He was buried at Stillwater, Minnesota.

He was so well thought of at New Richland that twenty years after he left there and eighteen years after his death, a memorial service was held in the High School Auditorium, on December 29, 1938. A beautiful bronze memorial plaque, bearing a portrait of the Doctor and a suitable inscription, was presented to the school by the citizens of the town. The *New Richland Star* at that time said "During his stay in New Richland, Dr. Batchelder became the true and trusted friend of every one with whom he came in contact. He typified all that was good and noble in the role he played as family physician."

After Dr. Batchelder's death, Mrs. Batchelder taught piano in the MacPhail School of Music, Minneapolis, for fifteen years. Now (1952) she lives in Bound Brook, New Jersey, where she has taught music since 1937.

J. P. Berrington's card first appeared in the Waseca paper on October 25, 1871, stating that his office was in his house at Wilton. This was two years after Wilton lost the County seat and Dr. Gove moved into Waseca. His card appeared for the last time on April 1, 1874. Nothing more is known of him.

Henry G. Blanchard, who died April 13, 1945, at the Fairmont Community Hospital, the institution he had helped to found in 1937, had a lifetime of pioneering in southern Minnesota. The doctor's parents, Gustave and Anna Marie Blanchard, natives of Switzerland, the father of French ancestry and the mother of German, arrived in southeastern Minnesota in the late 1850's, just as the state was emerging from a territory into statehood. They were married before emigrating to America. For a short time they stopped in Ohio, then pushed on across the Mississippi and established themselves in Winona County. There their son, Henry, was born April 17, 1868.

There were twelve children in the Blanchard family of whom the doctor was the eighth. In early life, he became familiar with all the hard work incident to pioneer life and the development of a farm from wilderness soil. He attended rural schools in Winona County, also in Cass County, North Dakota. Some of the terms were in a little log school house, and he remembered best the famous Blue Back Speller of that era. Later he attended the Winona High School and in 1893 obtained his B. S. degree at the University of North Dakota. He then attended the University of Minnesota, where he was awarded the degree of Doctor of Medicine in 1897. He first practiced at Hutchinson, Minnesota, then settled in Waseca in 1899 and practiced there for nearly three decades. Not until 1920, did Dr. Blanchard take a vacation, when he turned over his practice to Dr. Miller and spent a year in California. He and Dr. Miller then entered into partnership in Waseca. They went to Fairmont in 1928 and with others organized and built the Fairmont Clinic and Hospital, now the Community Hospital. With this institution Dr. Blanchard was associated the remainder of his life.

He was a member of the Blue Earth Valley, the Southern Minnesota, the Minnesota State, and the American Medical Associations. In the first World War, he volunteered in the Medical Corps in which he held a reserve commission, but was not called to active service because of the great need for his services on the home front. He was the medical examiner of the Waseca County Draft Board for a time. At Waseca he held many positions of official trust and responsibility and was the first citizen to own and drive an automobile.

The marriage of Dr. Blanchard and Miss Katherine Kiesler occurred at Hutchinson, Minnesota, June 25, 1902. They had a son, George H. Blanchard. Mrs. Blanchard's death occurred September 25, 1940.

Funeral and burial of Dr. Blanchard in Fairmont's Lakeside Cemetery took place the day before the doctor's seventy-seventh birthday, on April 16, 1945. He was a Democrat in politics, and was affiliated with the Episcopal Church. Dr. Blanchard was one of the kindliest, most considerate of men—qualities that endeared him to all.

James H. Bowers filed his medical certificate, which is dated March 30, 1885, with the Clerk of Court in Waseca County on May 11, 1896. He was a homeopathic physician and apparently did not stay in Waseca very long. The notes on the "Medical History of Nicollet County," in the May, 1949, issue of MINNESOTA MEDICINE, has this brief account of him: "James H. Bowers was graduated from the Chicago Medical College in 1885. He practiced homeopathy, locating in St. Peter in May 1891, and remaining until January 1894, when he moved to Renville, Iowa. From 1897 to 1899, he was in Owatonna." It seems probable that he moved to Owatonna after about a year in Waseca. Nothing more is known about him.

Jacob C. Brubaker was born December 25, 1834, at Lancaster, Pennsylvania. His parents came to Minnesota in 1857 and settled at Wilton. He did not come at that time as he was a medical student, or had just graduated. In 1861, at the start of the Civil War, he was practicing in Richmond, Virginia. He was given the choice of joining the army as an army surgeon or going to Libbey prison. He joined the army. Just when he came to the west is not known, but he practiced at Alta, Iowa, at one time, probably before coming to Waseca. He came to Waseca in July, 1868, and was married there in 1876 to Miss Lallie Smith. They had twin sons, Roy and Guy. Roy is thought to be still living (1952) in California; Guy died a few years ago.

While in Waseca, Dr. Brubaker owned a drug store, too, on the site of the Waverly Hotel building. He left Waseca in 1879 or 1880 and went to Germany to specialize in gastrointestinal diseases. He was there for about two years, but never returned to Waseca. In 1898, he was known to be running a private hospital in Chicago and specializing in stomach disorders. About 1907 he moved to Colorado Springs where he died in 1912. He is buried there.

William A. Chamberlain was born in 1853 at Putney, Vermont, the son of William Merritt Chamberlain (born at Brattleboro, Vermont) and Sophia Kelly Chamberlain (born at Chesterfield, New York). He graduated at Rush Medical College in 1882.

He was written up in the Winona County notes on Medical History in the June 1940 issue of MINNESOTA MEDICINE. "William A. Chamberlain graduated at Rush Medical College in 1882. He located at St. Charles, Minnesota in February of the same year. In January 1883, he purchased a stock of drugs, then ten months later, he moved to Winona to engage in the drug business. He continued his store in St. Charles under a manager and introduced Dr. Knapp of Maine as a successor to his practice there." Later, he moved back to St. Charles. He is referred to also in Nora Guthrey's notes on Olmsted County as one of the two doctors from nearby towns, who on one occasion took over the practice of Drs. Will and Charlie Mayo for a few days on some rare occasion, when both were away at the same time. He was president of the Winona County Medical Society in 1896. At one time he was mayor of St. Charles. He was married while there and had one son, who died at the age of twenty-two months of spinal meningitis.

In 1898, he moved to Waseca, where Mrs. Chamberlain died on March 16, 1925. She was buried at St. Charles.

He was an unusually studious and well read man. His advice was often sought by other doctors in consultation. He was not too interested in carrying on an extensive practice and every year or two went away to take a short course of some kind or visit clinics, usually in the east. He was a great writer, and wrote five books, though only one was published. It was a large volume of four or five hundred pages, written for use in the home by the public. The title was "A Guide to the Prevention of Disease and the Preservation of Health." It contained a description of the various diseases with home treatment which he recommended. This was mixed with a great deal of philosophy and wit and humor of his own, which added great spice to the reading.

While at Waseca he was for many years associate surgeon for the Chicago and Northwestern Railway. During the last few years of his life his health failed considerably due to gall bladder disease and common duct obstruction. In September of 1930, he decided to retire and return to Vermont where he had a sister and two brothers still living. On the morning of September 27, 1930, he was found dead in a berth on a Boston and Albany train, near Pittsfield, Massachusetts, his death being ascribed to coronary thrombosis. He was buried at West Brattleboro, Vermont.

George Christie graduated from the University of Michigan in 1882, and was practicing in Waseca by 1883. He was not married. He was a brother of Father Christie, who was pastor at Sacred Heart Church, Waseca, from about 1876 to 1890. When the diocese of Winona was started, being cut off from the diocese of St. Paul in 1890, Father Christie became pastor of a church in Minneapolis, later becoming Archbishop of Portland, Oregon. Dr. Christie moved to Minneapolis in 1890 and took up the practice of medicine there. Nothing more is known of him.

H. T. Cobb of Vivan Township is referred to in *Child's History* for 1875 as a member of the Central Committee of the Reform Party, which was being promoted at that time. He is not on the 1886 or 1890 list of doctors in Waseca County, but he is known to have practiced in Janesville for a few years, probably in the early 1880's. Nothing further is known about him.

B. M. J. Conlin is known, mainly, as the first mayor of New Richland, when that village was organized. The first Council Meeting was held on March 15, 1878. The village was started late in 1877 upon the arrival of the Minneapolis and St. Louis Railroad from Minneapolis. Apparently Dr. Conlin was in New Richland only two or three years but in September, 1927, when the town celebrated its fiftieth birthday, he was located in Los Angeles and invited to the party. He did not come because of his age, eighty years, but sent a very gracious telegram. A special edition of the *New Richland Star,* on September 22, 1927 says: "Fifty years ago, Dr. B. M. J. Conlin, a young man, came to New Richland and was elected the first mayor. Two weeks ago we located Dr. Conlin again. He is living in Los Angeles. We sent him a telegram asking him to be present at the Golden Jubilee Celebration. Last week we received a message from him regretting his inability to be here, but expressing his appreciation of the invitation. Dr. Conlin now is eighty years old. Just two weeks ago, his wife, after visiting relatives in Freeborn for a month, returned to California. She said in spite of Dr. Conlin's advanced years he was well and enjoying life. Those who remember him say that he was the 'Beau Brummel' of the village fifty years ago, that he was very progressive, handsome, a good dresser and that there was no doubt as to his medical ability." It is thought that Dr. Conlin died in Los Angeles a few years later.

Clinton T. Cook graduated from Rush Medical College in 1890. His certificate to practice is dated July 8, 1892 and he filed it with the Clerk of Court in Waseca on May 3, 1893. He came to New Richland about that time from the

Asbury Hospital in Minneapolis, where he may have been interning. Apparently he was at New Richland for only one or two years, but he is listed in an old New Richland paper as having been a member of the City Board of Health about 1894. Nothing more is known about him.

Joseph Parker Corry was born at Alexandria, Virginia, on February 2, 1856. He graduated from Bennett Medical College in Chicago in 1892 and began the practice of medicine in Janesville, Minnesota, in 1892. In 1894 he was a candidate for coroner and in 1896 for County Superintendent of Schools, each time on the Populist Ticket. At one time he practiced in Chicago on Bryant Place for about three years, the exact time not known, possibly from 1898 to 1901. In any case he was in Janesville for three or four years previous to 1904. In that year Dr. J. J. O'Hara moved from Alma City to Janesville and Dr. Corry moved from Janesville to Alma City where he ran a drug store and continued the practice of medicine. He died at Alma City in June 1912.

Robert Orr Craig was a native of New York state, born in 1834. He studied medicine at Ogdensburg, graduated at Albany, New York, Medical College. He practiced medicine in that city one year, then served as assistant surgeon in the United States Army for five years on the Pacific Coast, and was appointed surgeon of the 10th New York Infantry in 1861. He served until the end of the war. He moved to old Janesville, then called Peopolis, in 1866 to practice medicine. In 1869, when the Winona and St. Peter Railway (now the Chicago and Northwestern) reached the Janesville area it did not pass through the old town, so a new town, the present Janesville, was started about one and a half miles southeast of the old site, which was abandoned. Dr. Craig and everyone else moved to the new town. He started a drug store, in partnership with Mr. J. O. Chandler who had a general store. He served as County Superintendent of Schools in 1868-1871, and was for several years a county commissioner. He was State Senator in 1883, 1885, 1891 and 1893. He married Miss Lamb, sister of Honorable M. H. Lamb of Alton Township. They had no children, but at various times made a home for five of Mrs. Craig's nieces and nephews.

He was an active member of the G.A.R. and was prominent in all public affairs. He had the confidence of the people of Janesville to a marked degree and was worthy of it. An old resident has written:

> "Dr. Craig was much respected and gained a reputation for wisdom, by remembering 'Speech may be silver, but silence is golden.' My father and Dr. Craig served together on the Township Board and Father used to tell how it was as hard to pry an opinion out of the Doc as to dig a rock out of the road."

Although a veteran of all of the years of the war (Civil) Dr. Craig would never take a pension because he thought it should be used for those who needed it more. He died at Janesville in 1907 and is buried there.

Damon Sprague Cummings was the son of Damon J. Cummings, one of the pioneer physicians of Hastings, Minnesota. Dr. Cummings was born in Otsego County, New York, November 17, 1850. When he was six years old his parents came to the territory of Minnesota and became residents of Hastings. He attended the public schools there, spent one year at Shattuck Military School, Faribault, studied two years at Cooperstown, New York Academy, took a course in medicine and surgery at Ann Arbor University, and graduated at the Northwestern College, Chicago in 1876. He practiced medicine for a time with his father in Hastings, then came to Waseca late in 1876 and enjoyed an extensive practice during his lifetime. He was County Superintendent of Schools, Mayor of Waseca for several terms, during which time the water and light system was installed. For many years he was president of the Board of Education. He was a man of public spirit and marked ability.

For years he was the local surgeon for the railroad companies. His capacity for hard work seemed to be unlimited. He married Miss Mattie Ward in October, 1897. They were the parents of two boys, both of whom are doctors. The elder of the two, Damon W., is practicing now in the Medical Department of the Veterans Administration at Phoenix, Arizona. The younger son, William G., specializes in obstetrics and gynecology. He is on the staff of Northwestern Medical School, and is on the staff of a clinic at Winnetka, Illinois, where he lives.

Dr. Cummings died of heart trouble at St. Luke's Hospital in Saint Paul on December 25, 1910, and he is buried in Woodville Cemetery, Waseca. Mrs. Cummings is living in Waseca, and is one of its most gracious ladies.

When Dr. Cummings died in 1910, the Minnesota Valley Medical Society, then still in existence (until 1913), drew up a resolution, part of which is quoted here:

> "The Minnesota Valley Medical Society desires to express its deep sense of the loss sustained by the profession of Southern Minnesota through the untimely death of one who as a charter member, its one time secretary, and a former president, was ever faithful and zealous in the discharge of all professional duties, and place on record this memorial of his worth as a citizen, and his great ability as a physician and surgeon.
>
> "Throughout the many years of his residence at Waseca wherein was comprised the greater portion of his active life and labors, Dr. Cummings occupied a most enviable position in the estimation of the entire community, the memory of which time will not efface. Never a seeker for place or power, and by disposition the most modest of men, he, nevertheless, entered with enthusiasm into whatever made for the lasting benefit of the community he loved so well. When called upon, as he frequently was, to occupy positions of public trust, he brought to the discharge of his official duties the same care and thoroughness that characterized him in his professional relations, a broad and comprehensive grasp of whatever situation confronted him, and a judgment born of ripe experience. Thus gifted and beloved, possessing the confidence and the respect of all, he filled the measure of his days with service to his fellowmen, and gave of his time and energy in large and generous measure for the public good."

Norman C. Davis is listed in an 1886 directory as a physician in Janesville. His name is not on the 1890 nor the 1893 list. The "History of Medicine for Brown County," MINNESOTA MEDICINE, April 1941 says:

> "Dr. N. C. Davis graduated from the College of Physicians and Surgeons, and after one year in Sleepy Eye, he moved to Pipestone, where he practiced until his death in 1931."

Where he was between the time he left Janesville (late in the 1880's) and the time he started practice in Sleepy Eye is not known. He was a physician of the regular school.

(To be continued in July issue.)

President's Letter

CHILD HEALTH IN MINNESOTA

Efforts to improve Minnesota's excellent record of child health must take into account the startling fact that more childhood deaths are caused by accidents than by any disease.

It is possible to rationalize this fact in terms of medical progress, which has brought most infectious diseases of children under control, thus permitting accidents to take precedence in the mortality records. But recognizing that advancement in one field means an increasing problem in a related area obviously does not contribute materially toward solving this subsequent problem.

A recent report by the Minnesota Department of Health showed that, in Minnesota, accidents are responsible for three times as many deaths as were caused by all communicable diseases in 1951 and that accidents are the leading cause of death between the ages of one and thirty-five in this state.

Tuberculosis—a half century ago the leading cause of death in Minnesota, and the rest of the nation as well—has dropped from the list of ten leading causes of death in Minnesota. And pneumonia, once a common cause of fatalities, has yielded to new methods of treatment to the extent that deaths due to pneumonia have decreased 75 per cent. Communicable diseases are no longer the dread scourges that they were fifty years ago. The over-all record for reduction of deaths due to disease shows that it has been twice as great as that for reduction in deaths from accidents.

Physicians must aid in the important educational programs that are being introduced to curb this dismaying death toll. In 1951, a total of 1,804 accidental deaths occurred in Minnesota. Twenty per cent of these deaths were persons under the age of twenty.

Motor vehicle accidents lead the accident mortality list; therefore our educational efforts must be directed primarily toward prevention of these. Drownings, burns and accidents with firearms rank next in order.

Obviously, these are preventable deaths. No miracle drugs or new surgical techniques are needed to control this public health problem. It is a matter of educating parents and children, of focusing public attention on water, traffic and other hazards so that these may be eliminated or minimized and of enforcement of applicable regulations.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

A PLEA FOR CONTINUED IMPROVEMENT IN ADOPTION PRACTICES IN MINNESOTA

ONE of the fundamental objectives of any married couple is to raise a family. When, for various reasons, some couples are unable to have children of their own, they may turn to anyone who can provide them with one or more babies.

In the past fifty years methods whereby a childless husband and wife could obtain a baby have changed. It is now the opinion of all those who are interested seriously in the problem that it is best done by means of a public or private agency that is approved by the state for placing the child. A baby obtained from such a source is most likely to be in good health and not mentally retarded.

Use of these approved agencies ensures consideration of the following vital factors: (1) adequate information is available regarding the youngster's parental history; (2) the real and the adoptive parents will never know each other or learn the whereabouts of each other; (3) adoption will not later be disputed legally by the real parent or parents; (4) the adoptive home will be suitable for the baby; (5) adequate follow-up visits will be made to be sure the adoptive parents and the child have been matched properly and (6) the costs will be reasonable.

None of these advantages are present when a baby is secured privately or through an unauthorized agency. Costs of obtaining a baby under these circumstances may be exorbitant.

So-called black or gray markets for babies exist in several parts of the country, chiefly near large cities. They flourish for two reasons: (1) the demand for babies exceeds the supply and (2) prospective adoptive parents do not wish to undergo the long period of waiting often necessary when infants are obtained from an approved agency. Workers in the Division of Social Welfare and others concerned with the problem are of the opinion that few of these markets exist at present in Minnesota.

Many states have laws regulating not only adoption but placement of infants as well. Minnesota has such laws. Section 257.03 from Minnesota Statutes 1949 Annotated is as follows:

> "*Notification of Director of Social Welfare.*—When any person, group of persons, organization, association or society shall place or assist in placing a child in a private home, not licensed as an infants' home, for the purpose of providing the child with a permanent home or for adoption, the person or those responsible for the placing of the child shall as soon as possible and not more than 30 days after the child is so placed notify the director of social welfare, in writing, giving the name and address of the child, the name and address and relationship to the child of the person or persons with whom the child has been placed together with such other information regarding the child and his foster home as may be required by the director of social welfare."

Other parts of section 257 and also parts of section 259 and 144 concern adoption and adoptive procedures.

This law is disregarded a number of times each year. Physicians are sometimes responsible for this failure to notify the authorities of placement of a child. In many instances this has been the result of ignorance of the law rather than of intent to break the law. Such omissions of notification always come to light when the petition for adoption is filed. All placements not made by the State Division of Social Welfare or by an authorized agency for placement must be investigated when this petition is filed. Such petitions cannot be filed until the child has been in a home for at least six months. After a child has lived in a home for that length of time it is usually too late to do anything constructive if a mistake in placement has been made. The purpose of the Minnesota legislation is to prevent hasty or ill-advised placements from occurring at all.

Even placements in boarding homes must be handled with some thought. In the past year in Minnesota, forty children were placed in boarding homes for temporary care and then subsequently were adopted by the boarding parents.

The number of nonrelative and nonagency placements of babies has decreased a little in our state in the past three years. This is commendable. However, from July, 1950, to July, 1951, 11 per cent of petitions for adoption originated from sources other than those of relatives and approved agencies.

A recent letter from A. F. Angster, Chief of Child Welfare in the State Division of Social Welfare, stated that hasty or ill-advised placements have not been reduced during the past year; if anything, they have increased.

In 1951, physicians were concerned in 38 of 134 (or 28 per cent) nonagency and nonrelative placements in Minnesota. Physicians may have been concerned in some of an additional 28 placements, but data on this group are not available.

It is the duty of the physician to be sure that the physical and mental status of a child who is a prospect for adoption has been evaluated correctly and approved. Though the physician may desire to help childless parents or a homeless child, he may have neither the time nor the technical sociolegal experience to do so properly. It is the duty of approved agencies to make placements and to ensure that such placements are best from the standpoint of the adoptive parents and, what is even more vital, that they are best from the standpoint of the adopted child.

George B. Logan, M.D., Chr.
Committee on Child Health
Minnesota State Medical
Association

MINUTE WOMEN

IT IS a thrilling experience to hear Suzanne Silvercruys Stevenson, National Chairman of The Minute Women of the United States of America, Inc., speak on the need for the women of the country to organize for the defense of the freedom of America. To hear her is to be convinced of the need of combating communism and collectivism in general; to carefully scrutinize the text books used in our schools; to prevent the publication and dissemination of literature intended to undermine religion, the family as a unit, and patriotism, and to mislead youth on the subject of sex.

It is said that a true appreciation of the value of liberty is attained only when that liberty is lost. This was the case with Suzanne Silvercruys. A native Belgian, caught by the rapid advance of the German army in August, 1914, she knew the terror of living in an occupied country, where even footsteps on the street at night were terrifying. She escaped at the risk of her life into Holland and thence to England and eventually to the United States. Always an admirer of our country and things American, she became a citizen thirty years ago.

Being a sister to the present Belgian ambassador and in touch with politics and social legislation, she has seen more clearly than most native Americans the recent trend towards socialism and collectivism which has invaded our economy. It was she who was responsible for the getting together of 127 Connecticut women on September 22, 1949, to form the Minute Women of the United States of America, determined to demand economy, morality and efficiency in government and to protect the freedoms guaranteed by the Constitution of the United States.

Mrs. Stevenson has provided not only the spark that initiated the movement but has been the dynamo which has spread it into twenty-six states. She is at present flying all over the country to address groups of women and to stir them up to do their bit by joining The Minute Women. Numbers rather than money is the aim. Membership is $2.00 and a pledge to vote at each and every election. New members are urged to obtain five additional members. New members receive a pin which they are urged to wear continuously. They also receive a monthly newsletter which contains informative material.

Women, wherever located, are urged to form units for local action. Information may be obtained by writing to the national Headquarters of The Minute Women of the United States of America, Inc., R.F.D., North Windham, Connecticut, which is Mrs. Stevenson's residence. Memberships, too, may be obtained direct by sending the fee of $2.00 to North Windham or to the treasurer of the Saint Paul Chapter, Miss Georgia Nichols, 775 West Cottage Street, Saint Paul.

Here is a worthwhile, non-partisan organization, which welcomes members of all creeds and races who believe in God and want to preserve our freedom. We suggest a serious consideration by the various units of the Woman's Auxiliary of the State Medical Association.

MINNESOTA STATE MEDICAL ASSOCIATION

Ninety-ninth Annual Meeting

Registration figures for the ninety-ninth annual meeting of the Minnesota State Medical Association prove the outstanding popularity of the annual conventions for the medical profession of Minnesota. Some 1,798 doctors registered at the Minneapolis Auditorium; 643 nurses, dietitians, technicians, social workers and medical secretaries; 148 scientific exhibitors; 506 commercial exhibitors; 268 woman's auxiliary members; and 361 miscellaneous guests which include interns, graduate students, nursing trainees and other hospital staff and medical staff and school members. The total registration figure was 3,724.

Scientific sessions, both special and general, were well attended, and doctors heard authoritative discussions by speakers well-known in their respective fields. Doctors and their guests heard informative discussions by guest speakers on "The Induction of Labor," Dr. Hugh G. Hamilton of Kansas City, Missouri, and Dr. Leon S. McGoogan of Omaha, Nebraska; "Clinical Aspects of Abnormal Small Intestinal Physiology," Dr. Ross Golden of New York; "Practical Aspects of the Rh Factor," Dr. Edith L. Potter of Chicago; "Carcinoma of the Cervix," Dr. Richard W. Te Linde of Baltimore, Maryland; "Treatment of Convalescent Cardiac Cases," Dr. Chester M. Kurtz of Madison, Wisconsin; "Some Recent Advancements in the Management of Hypertension," Dr. Carleton B. Chapman of the University of Minnesota; and "Recent Advances in Research on Rheumatic Fever," Dr. Lewis Thomas of the University of Minnesota.

On Monday night, May 26, those attending the convention were guests of the Hennepin County Medical Society and the Minnesota State Medical Association for the Open House gathering. Schiek's Sextette presented songs from "South Pacific." The Minneapolis *Star and Tribune's* "Parade of Personalities"—Cedric Adams, Victor Cohn, Sidney Goldish, George Grim, Mary Hart, Will Jones, Charles McFadden, Virginia Safford and Bernie Swanson, appeared in person to present a few remarks for the edification and entertainment of the medical profession.

As usual, the annual banquet, on May 27, was a gala event. More than 400 doctors, doctors' wives and guests were served and were kept entertained by a fine array of presentations of awards and excellent addresses.

Presentation of gold pins and certificates to members of the "Fifty Club"—doctors who this year have completed 50 years in the active practice of medicine—was conducted by Dr. C. G. Sheppard, Hutchinson, Speaker of the House of Delegates. Awards this year were received by 20 doctors: Edmund W. Alger, Minneapolis; Nellie O. N. Barsness, St. Paul; Stephen H. Baxter, Minneapolis; Karl A. Danielson, Litchfield; J. M. Fisher, Willmar; Edward W. Humphrey, Moorhead; Wade R. Humphrey, Stillwater; Marius J. Jensen, Minneapolis; Adolph G. Liedloff, Mankato; T. P. Martin, Arlington; Oscar F. Mellby, Thief River Falls; Edward A. Meyerding, St. Paul; Olof A. Olson, Minneapolis; Matthias L. Ransom, Hancock; William B. Roberts, Minneapolis; J. Albert Schultz, Albert Lea; August C. Tingdale, Minneapolis; Henry L. Ulrich, Minneapolis; Henry J. Welles, Minneapolis; and Arthur B. Williams, St. Paul.

The association's distinguished service award and medal was presented by Dr. O. J. Campbell, Minneapolis, Chairman of the Council, to Dr. William H. Condit, Minneapolis, for his many years of service to the association, as councilor, first vice-president and treasurer.

The prize for the best scientific exhibit, a medal presented for the Southern Minnesota Medical Association by its president, Dr. W. A. Merritt, Rochester, was awarded to Dr. Jane E. Hodgson of St. Paul for her outstanding exhibit on "Frog Test for Pregnancy."

Ballots were cast at the Auditorium for the prize to be given to the most popular piece of art displayed at the Physicians' Hobby and Art Show. This prize went to Dr. J. L. Benepe of St. Paul for his painting "Mountain Evening."

The Hon. C. Elmer Anderson, governor, brought greetings to the Association, their guests and friends from the state administration.

Dr. R. L. J. Kennedy, Rochester, in his presidential address, urged physicians to shed the prototypes the public has endowed them with and work diligently during the months and years ahead to balance the equation: human relations equal public relations.

Dr. Kennedy described these prototypes in four different categories: Dr. Kindheart, the good old-fashioned doctor who cured with a mixture of friendliness and folklore; Dr. Billyou, the mental banker, who drives a high-powered car, and when not performing unnecessary and expensive operations, is available only at the country club; Dr. Germfree, the man in white, who is all science and no humanity and who dispenses a robot-like form of medical care; and hybrid of the last two: the society doctor who combines dollar interest and clinical competence.

Dr. Kennedy urged doctors to do all they could to erase these erroneous conceptions of the doctor from the public mind. He asked if the profession had allowed the personal element in relationships with patients to be overshadowed by mechanical implementation of technical knowledge and skill. He said, "Maybe doctors never were like the public thinks they used to be, but couldn't we annex some of its wishful thinking and give the public a semblance of its own concept —a modicum of sympathy, understanding and sincere, personal interest?"

Banquet guests heard the speaker of the evening, Dr. J. Martin Klotsche, president of Wisconsin State College in Madison, describe one of the disturbing aspects of the contemporary scene as the steady pushing ahead of frontiers in the field of science while the gap is widening between this technological advancement and man's adjustment to that achievement.

Dr. Klotsche expressed a basic belief in the ability of Americans to narrow this dangerous gap in the fact that we have accepted the truth that every individual possesses dignity and worth and has the right to be considered a person at all times regardless of race, color, creed, economic status or political belief. He described the vast contrasts of America as an advantage: "America is a land made up of many nationalities, races, traditions and faiths. It was born in diversity and has prospered and grown because we have cultivated multiplicity. . . . The United States is large. It does contain multitudes. But it is this incorrigible pluralism that has given us such great vitality. This diversity confounds the stranger in our midst bewildered by the existence of persons of so many different races, nationalities and creeds. But to us this diversity is no problem at all. It is in fact our greatest asset."

Annual session business meetings were begun on May 24 with the Council meeting. The Council also met daily during the convention. The House of Delegates met on May 25 and 26 for discussion of major policy decisions. New officers elected on May 26 were:

President-Elect—Dr. O. J. Campbell, Minneapolis
First Vice-President—Dr. Justus Ohage, St. Paul
Second Vice-President—Dr. C. E. Merkert, Minneapolis
Secretary—Dr. B. B. Souster, St. Paul
Treasurer—Dr. W. H. Condit, Minneapolis
Speaker, House of Delegates—Dr. C. G. Sheppard, Hutchinson
Vice-Speaker, House of Delegates—Dr. H. M. Carryer, Rochester
Councilor, Third District—Dr. L. G. Smith, Montevideo
Councilor, Fifth District—Dr. L. R. Critchfield, St. Paul
Councilor, Sixth District—Dr. H. B. Sweetser, Minneapolis
Councilor, Seventh District—Dr. W. W. Will, Bertha

Committee breakfasts were held on May 27 and 28 and reference committees of the House of Delegates met prior to the House meeting on Sunday, May 25.

INCOMES, INFLATION AND TAXES

We have just read an analysis of the change in the distribution of incomes which has occurred since the late thirties.* Attention is called to the fact that whereas in 1939 three out of four families had incomes of less than $2,000 a year, only one in three fell into that group ten years later. In the late thirties, one family in about fifty was in the $5,000-and-over income class. In the late forties, one out of six was in this class. Likewise, in the late thirties, one out of every 100 was in the $10,000-and-over group, and ten years later one out of every twenty fell into this group. This means obviously that there are more dollars to spend. We should be better off financially and everyone should be happy.

One need not be an economist to point out that two main factors modify the apparently rosy picture depicted by this marked increase in national income: the present 50 cent dollar and taxes. It is true that with an increased income, one can buy more chewing gum and Coca-Cola, but about everything else has about doubled in cost. Add to this the burdensome taxes and it is a question whether the general tendency toward an equalizing of incomes has been a "leveling up rather than a leveling down" as mentioned in the editorial.

Some further interesting figures are cited in this same editorial. According to the *Daily News,* the head of a family of four must now earn $6,783 to equal the $3,000 he earned in 1940; $11,540 to equal $5,000 in 1940; $25,800 to equal the $10,000 he made in 1940. To carry it further, a family of four should have an income of $121,000 in 1952 to equal a $25,000 income in 1940 after inflation and taxes. How many have increased their incomes to this extent?

What should be a real cause of concern is that with the already burdensome taxes bringing in billions to the federal treasury, a deficit of over 7 billion dollars has been reported* for the first eight months of the present fiscal year which began July 1, 1951. For this same eight months' period, the Federal Government paid out $41,835,968,621, compared with $26,081,947,693 spent during the same period of the previous fiscal year. We can't keep adding five to ten billion dollars yearly to our present national debt of over $260,000,000,000 and do it indefinitely. Joe Stalin must be gloating as he sees inflation and national debt increasing at a dangerous rate.

Armaments and national defense, of course, claim a large share of our economic output. We are inclined to agree with Herbert Hoover that our economy cannot stand the maintenance of a large standing army, nor is it necessary, but that we should concentrate on air and navy power. There are numerous other spheres of governmental activities in which economies are not only possible but mandatory. Congress, please take notice.

LIFE EXPECTANCY

According to the Statistical Bulletin of the Metropolitan Life Insurance Company for January, 1952, the life expectancy at birth in this country reached an all-time high in 1951 of 68.5 years. This is the company's experience in the industrial population excluding deaths from enemy action (the Korean war). Even if war deaths are included, the figure is still an all-time high. The life expectancy at birth has been increased five years in the past ten years, and ten years since the early thirties. In 1911, the expectation of life at birth was 46.6 years in the insured group, which was 6.5 years less than that for the general population of the United States.

In 1951, the mortality for tuberculosis declined 15 per cent below that of the previous year to an all-time low of 17.6 per 100,000 policy holders. This is a little more than half of the mortality only five years ago. Since 1911, the death rate from tuberculosis in the industrial population has been reduced more than 90 per cent.

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*Editorial. Distribution of income. New York State J. Med., 52:1121, May 1, 1952.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

HEALTH COMMISSION REPORTS METHODS

The President's Commission on Health Needs of the Nation has undertaken to study, in one short year, the long-range health needs of the American people. To do such a tremendous job will mean one of two things: either the Commission will have to do a fast and slipshod job in order to include all phases of this problem; or it will have to do an incomplete job in order to adequately study one or two phases of the problem. In either case, it would seem impossible to secure from the Commission a complete or accurate picture of the health needs of the American people.

Commission Adopts Standard

The broad, all-inclusive standard which the Commission has adopted for use during the study indicates that it plans to try to include as much as possible in this one year. The standard adopted is the World Health Organization's definition of health: "Health is a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity." Thus it is seen that this working definition requires the goal of health services to include not only prevention, cure or alleviation of disease, but it includes *all* social measures involving environment and the people as a whole which contribute to health and the attainment of health.

Methods Dubious

On the surface, the overall methods and plans of the Commission look to be quite inclusive. But a closer inspection reveals that there is much of a general nature—a virtual skimming over of the many orbits of health needs in as heterogeneous a nation as the United States. Such general investigation cannot possibly assure obtaining an accurate picture of the nation's health needs.

The Commission is in the process of examining various phases of the health picture. Approximately twenty-five panels will be held on such general topics as prevention of disease, public medical care, general practice, and promotion of health. Each panel is to include "eight to ten leading medical and lay experts in the health area under discussion."

At the same time, the Commission's technical section on health resources will be working up an inventory of the nation's health resources. In the final stages of its work, the Commission will measure the health needs against the health resources and formulate its recommendations to the President.

This is all well and good, except for the fact that it is not thorough, it has not consumed adequate time for expert examination, and it is likely to be a hurry-up, erroneous survey. Plans to base all recommendations on the results of such inexact work would seem to be dangerous. Would it not be considerably better for the Commission to have been allotted enough time and resources to really make a comprehensive study? People responsible for considering recommended legislation based on findings from this one-year general study are more than likely to feel dubious and reluctant to support measures until more accurate and complete facts are made available.

EDUCATION FOUNDATION ISSUES FIRST REPORT

The first annual report of the American Medical Education Foundation has just been issued and it gives complete and detailed explanations of distribution of funds for 1951. Explanation is given of the different functions of the American Medical Education Foundation and the National Fund for Medical Education. The latter was organized first; its objective was "to raise annually from the medical profession, business, industry, labor, agriculture and other groups substantial sums for the unrestricted use of the medical schools in support of their teaching programs." The American Medical Association appropriated $500,000 as a nucleus for the sum for 1951. A few weeks later the AMA sponsored the establishment of the American Medical Education Foundation, a "not-for-profit corporation." The purpose of the Foundation is "to provide an instrument through which individual physicians, state and county medical societies and other professional organizations can make contributions in support of medical education."

Two Groups Work Closely

According to the report, the two fund organizations work in close conjunction with each other in order to facilitate the proper distribution of funds from organizations and individuals:

> "From its inception the Foundation has worked in closest co-operation with the National Fund for Medical Education. . . . The National Fund is designed to function on a wholesale basis and its objective is to raise funds from corporations and other organized groups. The Foundation on the other hand is conceived as a retail organization to raise funds from members of the medical profession."

Three Classes of Grants

The National Fund for Medical Education has divided money grants into three classes:

> "Class A Grants which are to be a uniform annual sum granted to each accredited medical school; Class B Grants which are to be a uniform annual sum per student in each accredited medical school and Class C Grants which will be awarded to individual medical schools on the basis of special needs and problems."

The first transfer of funds was made to the National Fund in June, 1951, in the amount of $640,682.90 representing the $500,000 appropriated by the American Medical Association and the additional contributions received to May 31, 1951. Shortly after July 1, the National Fund made an initial Class A Grant of $15,000 to each of the nation's seventy-nine four-year medical schools and of $7,500 to each of the two-year medical schools. The funds provided by the Foundation constituted 56 per cent of these grants.

The second transfer of funds occurred early in 1952, when the Foundation added its fund of $105,234.94 to the money raised by the National Fund for Medical Education during the remainder of 1951. This provided Class B Grants, calculated on the basis of $17 per student, to each medical school. For four-year schools, depending on the size of their student bodies, these grants ranged from $3,077 to $11,373.

The report states that in comparison to the large total budgets of medical schools in the nation, these sums may be small, but it explained: "In comparison with the overall operating budgets of the medical schools, these initial grants may seem small. Their importance and significance is increased, however, when it is realized that for many of the schools they constitute the largest amount of totally unrestricted money that the schools have had available in recent years. These grants have thus had a useful value far in excess of the actual number of dollars involved. That this is so has been attested to by many schools that have reported that these grants have enabled them to meet urgent needs such as employing additional instructors, providing small but vitally important salary increases for underpaid teachers or securing badly needed equipment and teaching aids."

Lessons Learned

The 1951 campaign for funds for medical education was conducted through the use of many media and through many different approaches. Among the more important observations that appeared are these:

> "1. Time and much effort will be required to make the Foundation and its objectives known to the members of the medical profession.
>
> "2. The ultimate success of the Foundation will depend on the degree of interest and effort put forth in its support by the state and county medical societies.
>
> "3. The appeal of the Foundation has been greatly enhanced by making it possible for physicians to use it as a vehicle for making contributions to medical schools in which they have a personal interest."

Local Efforts Increased

The report stated that during 1951 a total of $745,917.84 was contributed to aid medical education, by 1,811 individual physicians, thirty-four organizations and thirty-one lay friends of the profession. "Particularly encouraging was the marked acceleration in interest and activity on the part of state and county societies as the year progressed," the report went on. "In review, the accelerating momentum of the profession's inter-

(Continued on Page 574)

Clinical Results* with Banthīne® Bromide

(Brand of Methantheline Bromide)

22 Published Reports Covering Treatment of 1443 Peptic Ulcer Patients with Banthīne

Comprising the reports published in the literature to date which give specific facts and figures of the results of treatment

AUTHORS	No. of Patients	Chronic, Resistant to Other Therapy	TYPES OF ULCERS				RELIEF OF SYMPTOMS (Chiefly Pain)				Surgery or Complications[1]	Side Effects Requiring Discontinuance of Drug[2]	EVIDENCE OF HEALING			
			Duodenal	Jejunal	Stomal	Gastric	Good	Fair	Poor	No Report			Complete	Moderate	None	No Report
Grimson, Lyons, Reeves	100	100	93	7			80	11	4		5		47		19	29
Friedman	15	15	14			1	5		4	6[3]			2			13
Bechgaard, Nielsen, Bang, Gruelund, Tobiassen	26	26	21			5	16	4	6				8	6	12	
McHardy, Browne, Edwards, Marek, Ward	162		162				136	12	11		3	1	14	9	7	129
Segal, Friedman, Watson	34	34	34[4]				14	13			7	2	5		8	14
Brown, Collins	117	99	117				97	7	8		5	8	55	9	8	40
Asher	77		65		7	5	52	9	16			16		9	21	47
Rodriguez de la Vega, Reyes Diaz	5	4	5				4		1					3	2	
Winkelstein	116	116	102	8		6	102		14				53		18	45
Hall, Hornisher, Weeks	18	18	18				11		1	6[5]			18			
Maier, Meili	38	38	24			14[6]	27	7	4[7]				10	2	5	21
Meyer, Jarman	25	18	25				21		4							25
Poth, Fromm	37	37	37				33	3	1				33	3	1	
Plummer, Burke, Williams	41	41	41				36		5				38		3	
McDonough, O'Neil	104	100	104				63	10	31			11	4		11	89
Broders	60	60	58		1	1	35	19	6				10	1	49[8]	
Legerton, Texter, Ruffin	11		11				11									11
Holoubek, Holoubek, Langford	76	69	76				35	27	10		4	10	26		10	36
Ogborn	42		39	2		1	42[9]									42
Shaiken	48	48	48				33	10	3		2		33	10	3	
Johnston	145	145	145				143		2			2	143		2	
Rossett, Knox, Stephenson	146		141			5	146					4[10]	53			93
TOTALS	*1443*	*968*	*1380*	*17*	*8*	*38*	*1142*	*132*	*131*	*12*	*26*	*54*	*552*	*52*	*179*	*634*
PERCENTAGES		**67.8**	**95.6**	**1.2**	**0.6**	**2.6**	**81.3**	**9.4**	**9.3**			**3.7**	**70.5**	**6.6**	**22.9**	

1. Not included in tabulations.
2. Included in "Relief of Symptoms" as "Poor" and in "Evidence of Healing" as "None."
3. Four had no symptoms when Banthīne therapy was begun.
4. Of which seven were penetrative lesions and five partially obstructive.
5. No symptoms were present in four.
6. Two with symptoms only; no demonstrable ulcer.
7. Three were psychopathic patients and one had a ventricular ulcer of the lesser curvature.
8. Roentgen findings after treatment period of two weeks; forty-seven had duodenal deformity.
9. All returned to work within a week.
10. In these four, after relief of symptoms, Banthīne was discontinued because of urinary retention.

During the past two years, more than 200 references to Banthīne therapy in peptic ulcer and other parasympathotonic conditions have appeared in medical literature. Of these reports, 22 have presented specific facts and figures on the results of treatment in a total of 1,443 peptic ulcer patients, 67.8 per cent of whom were reported as chronic or resistant to other therapy. These results are tabulated above and show:

"Good" relief of symptoms was obtained in 81.3 per cent of the 1,405 patients on whom reports were available.

"Complete" evidence of healing was obtained in 70.5 per cent of the 883 patients on whom reports were available.

In all but 9.7 per cent, relief of pain was "good" or "fair." In all but 22.9 per cent, evidence of healing was "complete" or "moderate."

During treatment, 26 patients required surgery or developed complications other than ulcer which required discontinuance of the drug before results could be evaluated.

Of the remaining 1,417 patients, only 3.7 per cent experienced side effects sufficiently annoying to require discontinuance of the drug.

ACCEPTED
COUNCIL ON PHARMACY AND CHEMISTRY
AMERICAN MEDICAL ASSOCIATION

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*Volume containing complete references, with abstracts of 39 additional reports, will be furnished on request by

G. D. Searle & Co., P. O. Box 5110, Chicago 80, Illinois.

(Continued from Page 572)

est in the Foundation must be considered the outstanding achievement of the 1951 campaign."

1952 Campaign Begun

Plans for the 1952 campaign are well under way with an additional $500,000 gift from the American Medical Association. The Foundation's activities during 1952 "will be designed to take maximum advantage of the fund-raising potentialities of state and county medical societies."

Appreciation Expressed

The American Medical Education Foundation concluded its first annual report with an expression of appreciation and a pledge of continued efforts to aid medical schools. "The initiation of a new voluntary fund-raising effort is always difficult no matter how worthy the cause," the report concludes. "Inevitably there are moments when the slow response raises doubts in the minds of even the most optimistic and determined."

"Therefore, in reporting the names of the contributors to the 1951 fund, the Board of Directors wish to record their special gratitude to these individuals and organizations. Their contributions during this first year, when the Foundation was struggling to establish itself, provided much inspiration and encouragement. . . . To all who have supported the Foundation, the Directors pledge that they will continue to do all in their power to make the Foundation a source of growing assistance to the medical schools and a program of constructive good of which every member of the medical profession can be proud."

An accurate description of public health in this country today would hardly be valid for vast areas of the world. In many parts of the world the absence of simple personal and community hygiene underlies most of the health problems, and such diseases as malaria, intestinal disorders, and tuberculosis account for a very high proportion of deaths and disability. It would be necessary to go back, therefore, as much as a century in our own history to seek a suitable content for health programs in underprivileged parts of the globe today. Health problems cannot be isolated from the environment—both physical and social—in which they exist. Such factors as the individual's job, his family life, his housing, his recreation must all be assayed for their impact on health and disease. In other words, we must now not only put emphasis on the individual and his needs, but also consider him in relation to his whole complex socioeconomic environment.—Joseph W. Mountin, M.D., *Public Health Reports,* March, 1952.

EXCESSIVE FEES MAY WRECK BLUE SHIELD PLANS

Dr. John W. Cline, president of the American Medical Association, warns in a special message of the dangers and the unethical character of excessive fees.[1] He states:

> A short time ago I received a letter from a prominent labor leader, one who is a friend of medicine. He told the following story: "Recently, in a western city, a surgeon performed an operation for uncomplicated appendicitis upon a woman patient. The operation and convalescence were routine. The fee was $150. In the same week the same surgeon performed the same operation upon another woman. It was also routine and also without complications. The fee was $300."
>
> The labor leader went on to say that the only difference between the two cases was that the first woman had no sickness insurance, while the second woman was insured under a union health plan. He charged that the surgeon had doubled the second woman's bill deliberately. What, he wanted to know, was what the medical profession doing about such unfair practices?

The AMA is undertaking a study to determine the extent of the practice of increasing fees. Intentional raising of fees, Dr. Cline believes, is not a widespread practice. but if it occurs at all, it brings discredit upon the profession. He calls on all medical societies to use disciplinary action when such practices are found in fact to exist.

In conclusion he says:

> Voluntary insurance against sickness has been sold to the American people as a practical means of protecting themselves from unexpected and perhaps overwhelming medical costs. The value of these plans must not be destroyed by the few physicians who view them as an opportunity to collect an increased fee. Voluntary prepayment plans are the medical profession's greatest bulwark against the socialization of medicine. This program must not be jeopardized by avaricious physicians who have not learned that liberty depends upon individual integrity and responsibility. Unfair and unethical conduct by a small, irresponsible segment of the profession not only harms the patients involved but endangers the freedom of medicine. These practices must be eliminated!

We submit the foregoing for the consideration of our members!—*New York State J. Med.,* May 15, 1952.

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[1] J.A.M.A., 148:1036 (Mar. 22) 1952.

Doctor, when you peruse the advertising pages of our journal, remember this: All ads are carefully screened —the items, services and messages presented are committee-accepted. Our standards are of the highest. The advertisers like our journal—that's why they selected it for use in their promotion program. They seek your patronage, and your response encourages continued use of our publication. In turn, the advertisers' patronage helps us to produce a journal that is second to none in our state. When you send inquiries, tell them that you read their advertisement in Minnesota Medicine.

WHEN FOOD INTAKE *is inadequate*

When the patient's food intake is inadequate to supply essential nutrients in proper amounts, clinical experience has demonstrated the supportive value of a dietary supplement providing substantial quantities of virtually all needed nutrients—protein, vitamins, minerals, carbohydrate, and fat. The choice of the supplement prescribed, to a large extent, can determine the efficacy of the supplemented diet since over-all nutrient adequacy is the primary aim.

It is apparent from the data shown below that Ovaltine in milk can serve well in markedly increasing the intake of virtually all known nutrients. Taken daily during periods of inadequate consumption of other foods, it offers an excellent means for preventing subclinical nutritional deficiencies which can undermine general health or retard recovery from illness.

The appealing flavor of Ovaltine makes it acceptable to children as well as adults, including the aged. Ovaltine in milk is easily digested, an important feature when digestive disturbances are a factor.

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MINERALS		VITAMINS	
*CALCIUM	1.12 Gm.	*ASCORBIC ACID	37 mg.
CHLORINE	900 mg.	BIOTIN	0.03 mg.
COBALT	0.006 mg.	CHOLINE	200 mg.
*COPPER	0.7 mg.	FOLIC ACID	0.05 mg.
FLUORINE	3.0 mg.	*NIACIN	6.7 mg.
*IODINE	0.7 mg.	PANTOTHENIC ACID	3.0 mg.
*IRON	12 mg.	PYRIDOXINE	0.6 mg.
MAGNESIUM	120 mg.	*RIBOFLAVIN	2.0 mg.
MANGANESE	0.4 mg.	*THIAMINE	1.2 mg.
*PHOSPHORUS	940 mg.	*VITAMIN A	3200 I.U.
POTASSIUM	1300 mg.	VITAMIN B_{12}	0.005 mg.
SODIUM	560 mg.	*VITAMIN D	420 I.U.
ZINC	2.6 mg.		

*PROTEIN (biologically complete)	32 Gm.
*CARBOHYDRATE	65 Gm.
*FAT	30 Gm.

*Nutrients for which daily dietary allowances are recommended by the National Research Council.

✦ Reports and Announcements ✦

FORMATION OF INTERNATIONAL FERTILITY ASSOCIATION

On October 18, 1951, in Rio de Janeiro, Brazil, delegates from twelve nations founded a new world medical society known as the International Fertility Association. The aims of this organization are:

1. To study the problems of fertility and sterility in their broad implications.
2. To stimulate scientific investigation and social awareness in the field of fertility and sterility.
3. To standardize and orient nomenclature, terminology, tests and evaluation of diagnostic methods and therapy, throughout the world.
4. To hold international congresses in the specialty in different parts of the world. These congresses are to be regularly scheduled.

The First World Congress on Fertility and Sterility sponsored by the new society will be held in conjunction with the American Society for the Study of Sterility in New York City in May, 1953.

Further information can be obtained by writing to Dr. Carlos D. Guerrero, Secretary-General, Miguel E. Schulz No. 19, Mexico, D. F., or to Dr. Abner I. Weisman, Associate Secretary-General, 1160 Fifth Avenue, New York, N. Y.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION 1952 AWARD CONTEST

The National Gastroenterological Association announces its annual Cash Prize Award Contest for 1952. One hundred dollars and a certificate of merit will be given for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy.

Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of impartial judges, and the award is to be made at the annual convention banquet of the National Gastroenterological Association in October.

Certificates awarded to other physicians will be mailed to them. The decision of the judges will be final. The association reserves the exclusive right of publishing the winning contribution, and the contributions of those receiving certificates of merit, in its official publication, *The Review of Gastroenterology.*

All entries for the 1952 prize should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than September 1. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The National Gastroenterological Association announces that its fourth annual course in postgraduate gastroenterology will be given at the Hotel Statler, New York, on October 23, 24, and 25.

As in past years the course again will be under the direction and co-chairmanship of Dr. Owen H. Wangensteen, professor of surgery of the University of Minnesota Medical School, who will serve as surgical co-ordinator, and Dr. I. Snapper, director of medical education of the Mt. Sinai Hospital, New York, who will serve as medical co-ordinator.

One complete session will be devoted to a clinical pathological conference at the Mt. Sinai Hospital in New York City.

For further information and enrollment, write to the National Gastroenterological Association, Department GSJ, 1819 Broadway, New York 23, N. Y.

AMERICAN COLLEGE OF SURGEONS' CLINICAL CONGRESS

New surgical techniques and clinical developments will be presented at the thirty-eighth annual clinical congress of the American College of Surgeons to be held in New York City, September 22 to 26. More than 9,000 surgeons from all over the world are expected to attend the program of panel discussions, symposia, surgical forums, motion pictures, cine clinics, color television and exhibits. Headquarters will be at the Waldorf-Astoria.

Dr. Alton Ochsner of New Orleans, 1952 president, will preside at the opening evening session, at which Dr. Harold L. Foss of Danville, Pennsylvania, will be installed as president for the year 1953.

(Continued on Page 578)

AVOID "OVERTREATMENT DERMATITIS"
"Overtreatment dermatitis is today a prevalent and often disabling cutaneous disturbance."*
* Lane, C. G., "Therapeutic Dermatitis", New Eng. J. Med., 246:77-81, 1952
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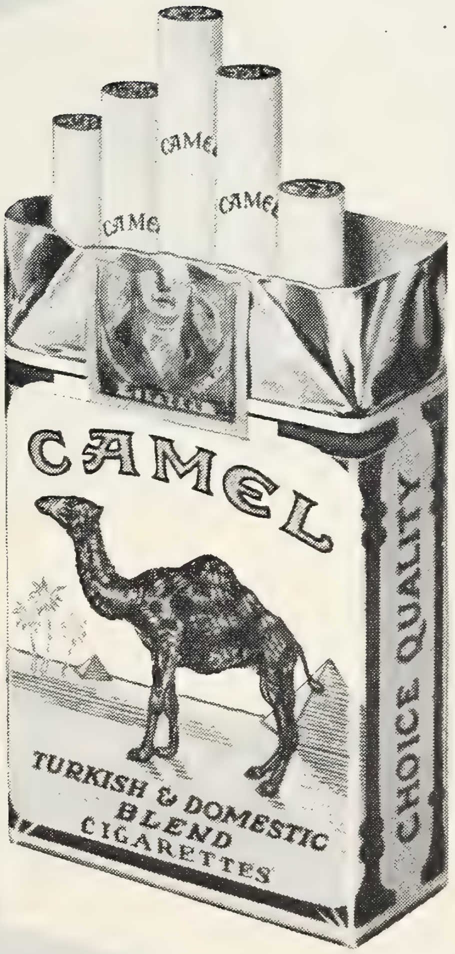
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MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The Minnesota Society of Neurology and Psychiatry held a meeting at Rochester on May 31. The morning session began with surgical clinics at St. Mary's Hospital, followed by the presentation of the following scientific papers:

"Seizures Produced by Mental Activity," by Dr. R. G. Bickford, Dr. Joseph Whalen, and Dr. E. D. Rooke. "Notching of the Optic Nerves and Chiasm in the Presence of Pituitary Tumors" by Dr. C. W. Rucker and Dr. J. W. Kernohan. "Neurologic Manifestations of Pheochromocytoma" by Dr. L. N. Eaton and Dr. W. F. Kvale. "Fears of Children" by Dr. E. M. Litin.

At the luncheon which followed the scientific session Dr. H. L. Parker spoke on "Alice Through the Looking Glass."

MINNESOTA OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The spring meeting of the Minnesota Obstetrical and Gynecological Society was held at Rochester on May 3. About fifty state physicians attended.

The scientific program included observation of operations at St. Mary's Hospital and Colonial Hospital and the presentation of papers by the following: Dr. R. T. LaVake, Minneapolis; Dr. Alex Barno, Minneapolis; Dr. T. J. Petrick, Saint Paul; Dr. R. B. Wilson, Dr. A. B. Hunt, Dr. E. A. Banner and Dr. William Hunt, all of Rochester.

BROWN-REDWOOD-WATONWAN SOCIETY

The annual meeting of the Brown-Redwood-Watonwan County Medical Society was held at New Ulm, on May 13. Principal speaker at the scientific session of the meeting was Dr. H. Wright, Minneapolis, who spoke on "Hypertension."

Election of officers, usually held at the spring meeting, was postponed until January so that it could be held in conjunction with elections in other county societies in the state.

FREEBORN COUNTY SOCIETY

Guest speaker at a meeting of the Freeborn County Medical Society at Albert Lea on April 24 was Dr. W. E. Wellman, Rochester, who spoke on "The Advances in Antibiotic Therapy."

LYON-LINCOLN COUNTY SOCIETY

The Lyon-Lincoln County Medical Society held a meeting at Marshall on May 13. During the scientific session of the meeting, Dr. G. R. Diessner, Rochester, presented a paper entitled "Preoperative Management of the Elderly Patient."

RICE COUNTY SOCIETY

At a meeting of the Rice County Medical Society at Northfield on April 22, Dr. Donovan L. McCain, Saint Paul, was the principal speaker. His subject was "Orthopedic Problems in General Practice."

(Continued on Page 580)

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting September 8, October 20.
Surgical Anatomy and Clinical Surgery, two weeks, starting June 16, September 22.
Surgery of Colon and Rectum, one week, starting September 15, October 13.
Gallbladder Surgery, ten hours, starting June 16, October 20.
Basic Principles in General Surgery, two weeks, starting September 8.
General Surgery, one week, starting October 6.
General Surgery, two weeks, starting October 6.
Breast and Thyroid Surgery, one week, starting June 23.
Esophogeal Surgery, one week, starting June 23.
Thoracic Surgery, one week, starting October 20.
Fractures and Traumatic Surgery, two weeks, starting June 16.
GYNECOLOGY—Intensive Course, two weeks, starting June 16.
Vaginal Approach to Pelvic Surgery, one week, starting September 22, November 3.
OBSTETRICS—Intensive Course, two weeks, starting September 29, November 3.
PEDIATRICS—Informal Clinical Course every two weeks.
MEDICINE—Electrocardiography and Heart Disease, two weeks, starting July 14.
Hematology, one week, starting June 16.
Gastroscopy and Gastroenterology, one week, Advanced Course, June 23.
UROLOGY—Intensive Course, two weeks, starting September 8.
Cystoscopy, ten days, starting every two weeks.
DERMATOLOGY—Intensive Course, two weeks, starting October 13.
Informal Clinical Course, every two weeks.

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL

ADDRESS: REGISTRAR, 707 South Wood Street, Chicago 12, Illinois

(Continued from Page 578)

SOUTHWESTERN MINNESOTA SOCIETY

Dr. W. R. Schmidt, formerly of Worthington and now practicing in Minneapolis, was the principal speaker at a dinner meeting of the Southwestern Minnesota Medical Society at Worthington on April 14. He discussed recent advances in thoracic and cardiac surgery.

On April 28 the society held its annual spring meeting at Jackson. Featured on the scientific program was a "Symposium on Fractures" presented by Dr. Earl C. Hendrikson, Dr. Daniel J. Moos and Dr. Maynard C. Nelson, all of Minneapolis. At the close of the meeting the society members and their wives were taken on a tour of inspection of the newly constructed $100,000 Jackson Medical Center.

WEST CENTRAL MINNESOTA SOCIETY

At a meeting of the West Central Minnesota Medical Society at Morris on May 7, Dr. C. H. Scheifley, Rochester, was the guest speaker. The title of his presentation was "The Significance of Chest Pain."

Woman's Auxiliary

RAMSEY COUNTY HOLDS PUBLIC RELATIONS TEA

The Woman's Auxiliary to the Ramsey County Medical Society had as its guests on April 28 in the Ramsey County Medical library, Parent Teacher Association members, representing the fifty-seven public schools, eighteen rural Ramsey county schools, thirty-four Catholic schools, and five Lutheran parochial schools. It also entertained representatives of the Minnesota Tuberculosis and Health association, school nurses, and representative graduating students of Macalester and St. Catherine's colleges who will teach the elementary grades in the fall.

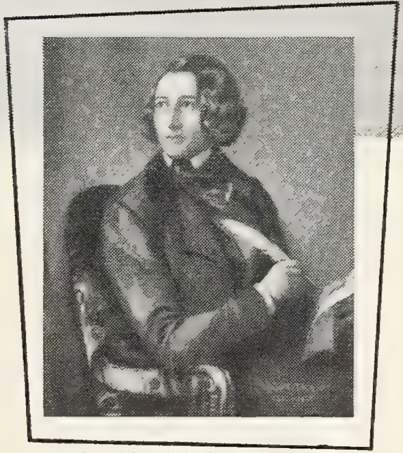
Dr. John P. Medelman, president of the Ramsey County Medical Society, greeted the 200 guests and commended them for their effort in the Summer Round-up program.

Dr. R. L. J. Kennedy, president of the Minnesota State Medical Association, gave a very instructive address concerning the community's responsibility and the physicians' responsibility in regard to the health of children. It was a source of inspiration to all Summer Round-up workers. It is hoped that all pre-school children will have a complete health inventory. In Ramsey County more than 5,500 children will be entering school for the first time in September.

Mrs. W. J. Johanson was in charge of exhibits and introduced the film, "Fluoridation of Water."

The Auxiliary is most grateful to Dr. Kennedy and Dr. Medelman for making its public relations tea a success.

Scene from "Oliver Twist"



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Psychoneurotic Men of Genius

Charles Dickens, the renowned British novelist, was subject to cyclic moods of pronounced depression characterized by intense nervous irritability and by the shedding of tears all day long. He was exceedingly sensitive to his own experiences as well as to the suffering of others.

In the great majority of psychoneurotics, there is no serious mental illness, but merely an emotional imbalance which often can be greatly improved by proper psychotherapeutic and sedative management. In the treatment of psychoneurosis, particularly agitated, depressed and anxiety states, Mebaral is preferred by many because it combines a high degree of sedative effectiveness—producing emotional stability—with a relative freedom from side effects such as languor and drowsiness. Patients usually become calmer, more cheerful and better adjusted to their surroundings without clouding of mental faculties.

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In Memoriam

OLIVER WENDELL ANDERSON

Dr. Oliver W. Anderson, formerly of Luverne, Minnesota, died April 28, 1952, in Minneapolis after suffering from a heart ailment for two and a half years.

Dr. Anderson was born at Swea City, Iowa, May 10, 1912. He graduated from the University of Minnesota Medical School in 1935 and interned at Detroit Receiving Hospital, Detroit, Michigan. After serving about two years in the army, he spent fifteen months at Fort Peck Dam in Montana. In 1939, he began practice in Luverne.

He was married to Marjorie Marie Grande of Minneapolis on July 6, 1936. The union was blessed with twin boys, Robert and Roger.

Dr. Anderson was a member of the Southwestern Minnesota Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a member of Our Savior's Lutheran Church of Luverne. An ardent golfer, he won a number of trophies and championships in Luverne and its environs.

JAMES WALDAMOR BYRAM

Dr. James W. Byram, Willmar, died April 28, 1952. He was forty-nine years of age.

James Byram was born May 30, 1902, in Redwood Falls, Minnesota. He graduated from the University of Minnesota medical school in 1931 and for the next twelve years had practiced medicine in Minneapolis, Echo, and Young America. He served as a surgeon for the Saint Paul police department from 1944 to 1947 when he became associated with the Hastings State hospital staff. He transferred to Willmar State Hospital in 1950 where he was a member of the staff at the time of his death.

Dr. Byram is survived by his mother, Mrs. Eliza Byram, Saint Paul; four brothers, Theodore G., Saint Paul; Ross F., Redwood Falls; Kenneth, Ball Club, and Robert, Murphysboro, Illinois; and two sisters, Mrs. Oscar J. Murset, Saint Paul, and Mrs. Fern Heinze, Los Angeles.

A. A. CHARPENTIER

Dr. A. A. Charpentier, Ramsey County chief deputy coroner for the past fourteen months, died suddenly April 12, 1952.

Born in France seventy-seven years ago, Dr. Charpentier came to Saint Paul more than forty years ago. He has been associated with the Coroner's office, Saint Paul, for several years.

MYRON F. HASSETT

Dr. Myron F. Hassett, a practicing physician of Saint Paul for nineteen years, died April 23, 1952.

Dr. Hassett was born in 1905. He received his medical degree from the University of Minnesota Medical School in 1932 and served his internship at Minneapolis General Hospital. In 1933, he opened an office at 486 Dale Street, Saint Paul.

He was a member of the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Hassett is survived by his wife, Hildegarde; two sons, Myron F., Jr., and Charles; a daughter, Hildegarde, and his parents, Mr. and Mrs. Charles Hassett, all of Saint Paul.

ROBERT JOSEPH HODAPP

Dr. Robert J. Hodapp died following a heart attack on March 17, 1952, at his home in Willmar, Minnesota. He had suffered a very serious heart attack in 1947 and a slight one a year ago. The third attack was followed by sudden death. His wife found him lying on the kitchen floor on her return from a short shopping trip down town.

Dr. Hodapp was born August 31, 1891, in Mankato. After finishing high school at Mankato, he attended and graduated from the Mankato Teachers College in 1911. After serving as a science instructor at the Grand Marais high school for two years, he entered the University of Minnesota where he received the degrees of B.S. in 1919 and M.D. in 1920. His internship was served at St. Mary's Hospital in Minneapolis.

Dr. Hodapp first located at Madelia, Minnesota, where he remained two years, moving to Willmar in 1921. He was much interested in civic affairs, and from 1938 on he served on the Willmar recreation board. Since 1941, he had been a member of the Board of Education of Willmar. He was a past president of the Kiwanis Club, a past master of Sharon Lodge, 104 A.F. and A.M., a past commander of the Austin-Hanscom American Legion Post and a director of the First National Bank. He was also a member of the Willmar Chamber of Commerce, the Izaak Walton League, the Willmar Golf Club, the Order of Eastern Star, the Tri-County Medical Society, the Minnesota State Medical Association and the American Medical Association.

On October 16, 1920, he was married to Blanche Vinton, who survives his passing. To them were born three children, Dr. Robert V. of Willmar, Barbara Jean and Donna Marie, both of Minneapolis.

Funeral services were conducted at the family residence, March 20, by the Rev. C. R. Channer of the First Presbyterian Church. Interment was at Fairview Cemetery.

(Continued on Page 584)

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SAMUEL N. MOGILNER

Dr. S. N. Mogilner, formerly a practitioner of Saint Paul, died May 13, 1952, in Los Angeles. He was sixty-eight years of age.

Dr. Mogilner graduated from the Chicago College of Medicine and Surgery in 1913 and practiced in Saint Paul from 1913 to 1943, when he moved to Los Angeles.

Dr. Mogilner is survived by his wife and three daughters.

MORRIS L. NATHANSON

Dr. Morris L. Nathanson, formerly a well-known heart specialist of Minneapolis, died April 24, 1952, in Los Angeles, California. He was fifty-nine years of age.

Morris Nathanson was born in Minneapolis in 1892. He graduated from the University of Minnesota medical school in 1918. He joined the faculty of his alma mater in 1920 and was associate clinical professor of medicine in 1937, when he moved to Los Angeles.

At the time of his death, Dr. Nathanson was on the staff of Cedars of Lebanon Hospital, Los Angeles, and was a director of the Los Angeles Heart Association. He was also a member of the Los Angeles County Medical Association, the American College of Physicians, the Society of Experimental Biology and Medicine, and the Society of Pharmacology and Experimental Therapeutics.

Dr. Nathanson is survived by his wife, Ruth, a sister, Mrs. Samuel A. Epstein, Minneapolis, and two brothers, Benjamin, Minneapolis, and Henry, Toronto, Canada.

ALFRED MILLER RIDGWAY

Dr. Alfred M. Ridgway, a practicing physician in Annandale for over sixty years, passed away May 19, 1952, at the age of ninety.

Dr. Ridgway was born in Columbus, Wisconsin, January 29, 1863. In 1882 he came to Minneapolis and was employed in a drug store until 1887, when he entered the medical department of the University of Minnesota. He was graduated in 1890 and was the only intern at the Minneapolis City Hospital before opening an office at Annandale in July, 1890. He took postgraduate study in Chicago in 1895 and again in 1900.

Dr. Ridgway helped organize the Wright County Medical Society some sixty years ago. He was a member of the Minnesota State Medical Association and the American Medical Association. He was also a member of the American Association of Railroad Surgeons and had been a surgeon for the Soo Line since December, 1909. He was a charter member of the I.O.O.F. and Rebecca lodges of Annandale and a member of the A.F. and A.M. lodge. He served on the Village Council and was mayor of Annandale in previous years.

In July, 1940, Dr. Ridgway's many friends took part in a celebration of fifty years of practice by the physician. Many of those who participated were of the 3,500 brought into the world by Dr. Ridgway.

On September 20, 1892, Dr. Ridgway married Miss Nola Ponsford. She survives him. Although they had no children, they provided a home for many young girls and helped them complete their education.

HOSPITAL SPEED and SAFETY for the PRIVATE OFFICE

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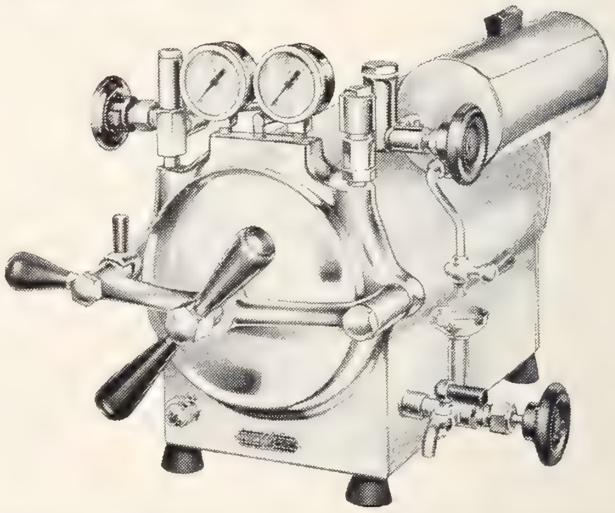

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If refrigeration is not available in the home, or when mother and baby are traveling, Baker's Modified Milk *powder* is safe, easily dissolved and easy to use.

In the home, sufficient powder for each feeding may be measured into capped, clean, dry, sterile nursing bottles and warm, boiled water added at feeding time. When traveling, the bottles may be prepared at home, and the boiled water carried in a thermos bottle.

For the comfort of both mother and baby in hot weather traveling, we suggest that you specify Baker's Modified Milk, *powder form*.

Baker's Modified Milk is also available in liquid form. When diluted to normal strength, both powder and liquid have the same analysis and both provide the same nutritionally adequate* formula.

*When fed in normal quantities, provides amounts of proteins, vitamins (except C), minerals and essential unsaturated fatty acids equal to or exceeding the daily recommended allowances of The Food and Nutrition Board of the National Research Council.

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◆ Of General Interest ◆

"Artificial Respiration," a teaching film, shows the new back-pressure—arm-lift method which has superseded the older methods of performing artificial respiration. The motion picture was produced with the help of national organizations concerned with life-saving, first-aid and health and safety education. The film is one reel in length, runs six minutes, and may be purchased for $37.50 from Seminar Films, Inc., 347 Madison Avenue, New York 17, New York.

* * *

Dr. Robert P. Jeub, Minneapolis, neuropsychiatric consultant to the Hastings State Hospital, spoke on the present status of prefrontal lobotomy before a group of rabbis, ministers and priests in Minneapolis on May 19. Dr. Jeub was a guest speaker in a course being offered to members of the clergy.

* * *

Among Minnesota physicians who attended the thirty-third annual meeting of the American College of Physicians at Cleveland late in April were **Dr. B. J. Cronwell,** Austin, and **Dr. Roy T. Pearson,** Shakopee.

* * *

Dr. Merrill D. Chesler, formerly associated with **Dr. Samuel G. Balkin,** Minneapolis, has announced the opening of his offices at 507 Physicians and Surgeons Building, Minneapolis, for the practice of plastic and reconstructive surgery.

* * *

Dr. E. M. Howg, formerly of Barrett, has moved to Oklee and reopened the medical department of the Oklee Clinic, which had been closed since **Dr. F. L. Behling** was called to duty with the Army more than a year ago. Dr. Howg is a graduate of the Northwestern University Medical School.

* * *

A son, David Jonothan, was born to **Dr. and Mrs. Melvin L. Grais,** Minneapolis, on April 9. Dr. Grais recently moved his offices from 620 Medical Arts Building to 1021 Medical Arts Building.

* * *

Dr. Olin M. Odland, formerly of Brookings, South Dakota, became associated with the Granite Falls Clinic at Granite Falls on May 1. A graduate of the University of Nebraska in 1950, Dr. Odland interned at Wayne County Hospital, Detroit. Before moving to Granite Falls he practiced in Brookings for one year.

* * *

Dr. Irvine M. Karon, 307 Lowry Medical Arts Building, Saint Paul, was recently certified as a diplomate of the American Board of Dermatology and Syphilology.

* * *

Dr. Edgar V. Allen, a senior consultant in the division of medicine at the Mayo Clinic, Rochester, was elected a vice president of the American Heart Association at a meeting in Cleveland on April 17. He previously served as a vice president of the organization two years ago.

* * *

Dr. Curtis J. Lund, a former associate professor at the University of Minnesota, has been named head of obstetrics and gynecology at the University of Rochester, New York. Dr. Lund has been with the Louisiana State University of Medicine since 1947.

* * *

Dr. W. H. Valentine, Tracy, attended an executive meeting of the Minnesota Tuberculosis and Health Association in Saint Paul late in April.

* * *

Sir Archibald Gray, president of the tenth International Congress of Dermatology, which will be held in London in July, has asked **Dr. Henry E. Michelson,** Minneapolis, to be one of the honorary vice presidents of the congress.

* * *

Dr. N. Logan Leven, Saint Paul, received an honorary degree of doctor of science from Macalester College at commencement exercises on June 2. Dr. Leven is one of the outstanding surgeons of Saint Paul.

* * *

Mrs. T. S. Eberley, wife of Dr. Eberley of Benson, died of a heart attack while fishing with her husband and son near Perham on May 17. Sympathy is extended by the members of the Minnesota State Medical Association to Dr. Eberley and his family.

* * *

Dr. S. A. Slater, superintendent of the Southwestern Minnesota Sanatorium, Worthington, was the principal speaker at a meeting of the Luverne Rotary Club on May 5. He discussed the fight being waged against tuberculosis by adequately staffed and financed sanatoriums.

* * *

"The Role of ACTH and Cortisone in Allergic Diseases" was the title of a talk given by **Dr. William S. Eisenstadt,** Minneapolis, at a meeting of the La Crosse County Medical Society at La Crosse, Wisconsin, on March 17.

* * *

Dr. Lawrence O. Pearson, formerly of Erskine, became associated in practice with **Dr. L. J. Larson** at the Clearwater Clinic, Bagley, on May 1. A graduate of the University of Minnesota Medical School, Dr. Pearson served his internship at St. Barnabas Hospital, Minneapolis, and did a year of postgraduate work at Miller Hospital, Saint Paul. Since then he has had twelve years of medical practice, a large part of it at Erskine.

(Continued on Page 588)

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(Continued from Page 586)

Dr. Asher A. White, Minneapolis, was re-elected president of the Hennepin County Tuberculosis Association at a meeting in Minneapolis on May 16. Among others named to office was **Dr. Robert N. Barr,** Minneapolis, second vice president, while **Dr. E. P. K. Fenger,** Oak Terrace was named a director of the organization.

* * *

Open house was held on April 27 at a newly constructed medical center at Jackson. Associated in operating the center, which has been incorporated as the Jackson Medical Center, are five Jackson physicians: **Dr. W. H. Halloran, Dr. W. B. Wells, Dr. H. A. Christiansen, Dr. B. N. Karleen,** and **Dr. E. T. Maitland.**

* * *

A regional community-team conference on mental health was held at Mankato on May 6. A day-long program was held for physicians, nurses, judges, welfare workers, clergymen and school personnel. The conference participants discussed the mental health problems they face in their communities and what could be done to solve them. Among the speakers at the conference was **Dr. Louis L. Flynn,** Saint Paul, who spoke on "The Real Meaning of Behavior." At a public meeting in the evening Dr. Flynn gave a talk on "Mental Illness; Let's Face It So We Can Fight It."

It has been announced that **Dr. Burton G. Olson,** Minneapolis, will join the McCannel Clinic in Minot on July 1. Dr. Olson has had a residency in ophthalmology at the University of Minnesota for the past four years.

* * *

Dr. Raymond J. Gully, superintendent of the Cambridge State School and Hospital was the principal speaker at a meeting of the Cambridge Business Association on May 7. He described the history, the growth and the purpose of the institution.

* * *

Dr. Roger L. J. Kennedy, Rochester, president of the Minnesota State Medical Association, was the guest speaker at an educational meeting in Saint Paul on April 28 sponsored by the Women's Auxiliary of the Ramsey County Medical Society. The meeting was held to honor persons taking part in a summer round-up health project for pre-school children of Ramsey County.

* * *

Dr. T. L. Chapman, Duluth, has been awarded a golden anniversary diploma by the Wayne University College of Medicine Alumni Association. As one of the college's 1902 graduates, Dr. Chapman was honored for "fifty years of faithful and honorable service in the art and science of medicine."

* * *

Dr. John F. Pohl, Minneapolis, was the main speaker at a Cerebral Palsy Family Fellowship pic-

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Official Registration Figures

MINNESOTA STATE MEDICAL ASSOCIATION'S ANNUAL CONVENTION
Minneapolis, Minnesota May 26, 27 and 28, 1952

Doctors	1,798
Nurses, Dietitians, Technicians, Social Workers and Medical Secretaries	643
Scientific Exhibitors	148
Commercial Exhibitors	506
Women's Auxiliary	268
Guests (Miscellaneous)	361
Total	3,724

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nic on May 17 at the Becker County 4-H Building. Dr. Pohl is the author of *Cerebral Palsy,* a textbook on the diagnosis and treatment of the disorder.

* * *

Dr. Peter J. Kitzberger, Jr., New Ulm, has been called to active duty in the Navy. He reported to the naval station at Great Lakes, Illinois, on May 1. A graduate of Marquette University Medical School, he became associated with the Seifert Clinic at New Ulm in 1948. Last year he took a leave of absence from the clinic to study obstetrics and gynecology at St. Mary's Hospital, Minneapolis. Dr. Kitzberger plans to return to New Ulm following his tour of duty with the Navy.

A feature story about **Dr. Michael F. Hayes,** Nashwauk, appeared in the *Duluth News Tribune* on April 13. Nashwauk's oldest resident physician, Dr. Hayes arrived there in 1912. Now, after forty years of medical service to the community, he hasn't officially retired but has decided to "take things easy."

* * *

Dr. Leonard F. Johnston, of the Winona Clinic, Winona, has been elected to active fellowship by the executive board of the American Academy of Obstetrics and Gynecology.

* * *

Dr. Ralph Rossen's resignation as commissioner of mental health in Minnesota became effective on

May 3. He had requested relief from his duties as commissioner almost a year ago so that he could return to his position as superintendent of the Hastings State Hospital.

Until a new commissioner is selected, Dr. Rossen will be replaced by a five-man committee including the following: **Dr. Magnus Petersen,** superintendent of the Rochester State Hospital; **Dr. E. J. Engberg,** superintendent of the Minnesota School and Colony at Faribault; **Dr. Gordon Kamman,** Saint Paul, and **Dr. L. R. Gowan,** Duluth.

* * *

Dr. Albert M. Snell, Palo Alto, California, formerly on the staff of the Mayo Clinic, has been elected president of the American Gastroenterological Association.

* * *

Dr. Allan E. Moe, formerly of Moorhead, moved to Marysville, California, in May to become associated with the Marysville Clinic.

* * *

Among the speakers at a regional community-team mental health conference held at Worthington on May 1 was **Dr. William Fleeson,** Minneapolis.

* * *

Dr. Carl O. Kohlbry, Duluth, was appointed full-time medical director for the city's public schools at a meeting of the Duluth board of education on May 5.

Dr. Earl R. Crow, former superintendent of the Minnesota State Tuberculosis Sanatorium at Ah-Gwah-Ching, left on May 1 to take a post at the Veterans Administration Hospital at Hot Springs, South Dakota.

* * *

On June 1 the community of Hayfield lost the services of the two physicians it has had for many years and at the same time acquired a new physician. **Dr. Harry R. Baker,** who has practiced at Hayfield since 1912, officially retired from active practice. His son, **Dr. Russell L. Baker,** who has practiced with his father since 1935, left for the University of Wisconsin to take postgraduate training in roentgenology.

To take over the Bakers' practice **Dr. E. Graham Howard** moved to Hayfield from Mapleton. Dr. Howard had practiced in Mapleton since 1938, with the exception of two years during World War II when he served in the Navy.

* * *

Among the speakers at a vocational guidance meeting for high school seniors of Otter Tail County, held at Fergus Falls on May 5, was **Dr. Kendall Brooks Corbin,** Rochester, who gave the students advice on professions.

(Continued on Page 592)

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30 days of Nurse at Home	5.00 per day	10.00 per day	15.00 per day	20.00 per day
Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
DISABILITY COSTS (Quarterly)				
Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00

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$15,000 accidental death Quarterly $24.00
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$10,000 accidental death Quarterly $16.00
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(Continued from Page 590)

Dr. I. L. Oliver, Graceville, made a plane trip east late in April to attend surgical clinics at New York and Boston on April 24, 25 and 26.

* * *

At an Upper Midwest conference of nurse anesthetists at Saint Paul on May 16 one of the speakers was **Dr. Richard C. Gaard,** Minneapolis.

* * *

Dr. Thomas T. Harada, formerly of Honolulu, Hawaii, has opened offices for the practice of medicine at Lake Wilson. A graduate of Temple Medical School, Philadelphia, Dr. Harada interned at St. Joseph's Hospital, Saint Paul, then served in the Army for almost four years. He has had postgraduate training in surgery.

* * *

An advance birthday party for **Dr. John deJ. Pemberton,** chief of a section in surgery at the Mayo Clinic, was held in Rochester on April 29, with eighteen of Dr. Pemberton's past and present first assistants attending. The day-long program included visits to operating rooms at the local hospitals, a luncheon, a tour of the clinic's new medical sciences building, a cocktail party and a banquet. Dr. Pemberton was presented with several gifts, including a book containing photographs and biographies of all his former assistants.

A few days later, on May 3, Dr. Pemberton reached the age of sixty-five. He will retire from the clinic staff at the end of the current quarter. He first entered the clinic as a fellow in surgery in 1913.

* * *

Dr. D. J. Halpern, Brewster, was elected chairman of the Nobles County Health Council at a meeting of the group on April 28.

* * *

Dr. William D. Coventry, Duluth, gave a talk on socialized medicine at a meeting of the Twin Ports Association of Purchasing Agents at Duluth on May 8.

* * *

Dr. J. J. Heimark, formerly of Fairmont, and **Dr. R. L. Parsons,** Monterey, formed a partnership on June 1 to practice medicine in the Triumph-Monterey community. Dr. Heimark practiced at Fairmont for twenty-five years.

Dr. Edward Johnson, who was associated in practice with Dr. Parsons during the past year, has moved to West Saint Paul to join a group of physicians who plan to operate a clinic there.

* * *

Among the speakers at the governor's third annual Conference on Children and Youth at Minneapolis on May 9 was **Dr. H. S. Lippman,** director of the Wilder Clinic in Saint Paul. He spoke on "Developing a Healthy Personality in Children and Youth."

* * *

Dr. R. H. Kath, formerly of Wood Lake, has moved to Arlington. His practice at Wood Lake is

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being handled on a part-time basis by Dr. Donald F. Holm of Willmar. Dr. Holm spends three days of each week at Wood Lake.

* * *

Dr. Roy W. Dickman is now engaged in private practice at 1409 Willow, Minneapolis, Minnesota. He has finished a five-year surgical specialty training program and is limiting his practice to general and thoracic surgery. He is a member of the American Trudeau Society, a Fellow of the American College of Chest Physicians, Junior Fellow of the American College of Surgery, and is eligible for the examinations for a Diplomate of the American Board of Surgery. He is sharing offices with George D. Eitel, M.D.

BLUE CROSS-BLUE SHIELD PLANS

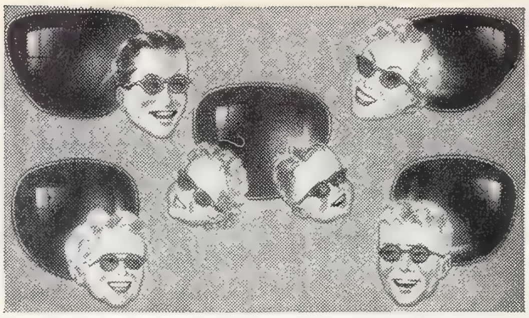
Blue Shield claims for the treatment of sprains and strains and the X-rays related to them have been alternately paid and rejected over a course of several years. Recently, when the original policy of rejecting such claims was resumed, so many inquiries resulted that a full review of the subject is herewith presented.

In June of 1949, treatment of sprains and strains was interpreted by the Medical Advisory Committee and Board of Directors of Blue Shield as medical rather than surgical. Since medical treatment is a valid claim only when rendered a hospitalized bed patient, office or home treatment of sprains or strains was ruled ineligible for payment as a Blue Shield claim. As a consequence, the x-ray films related to them, taken in the doctor's office, were also invalid Blue Shield claims. Following this initial interpretation, Blue Shield claims for sprains or strains were rejected or denied for some period of time.

Previously, however, advertising material and literature distributed for enrollment of Blue Shield subscribers stated or implied that claims for strains and sprains would be paid. With such material in the public's possession, it was not considered advisable to reject such claims. Consequently, the claims auditors inserted a code number in their administrative fee schedules, whereby such claims could be paid. This occurred during January, 1951.

As rapidly as possible such literature as contained these statements was recalled and more was not released. About March 1, last, an effort was made to return to the policy of rejecting such claims, as had been advised originally by the Medical Advisory Committee or Board of Directors. This policy was recently supported and emphasized at the meeting of Blue Shield plans in San Francisco. Sprains and strains and their treatment were recognized as medical in nature rather than surgical, and a nation-wide policy of so classifying them was advocated.

In the light of these facts, when the Medical Advisory Committee was informed recently of the increasing inquiries regarding sprains, strains and their treatment, it advocated paying such claims only until all literature promising their payment can be recalled and further releases stopped. Under these circumstances,



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claims involving severe sprains or strains which require truly surgical treatment will be paid as they have in the past until such time as the steps outlined can be accomplished.

* * *

Jorgenson Elected President, Board of Trustees

Clyde M. Jorgenson was elected president of the Minnesota Blue Cross board of trustees, at an election held at the regular meeting on Friday, April 25, 1952.

Mr. Jorgenson was elected to serve the unexpired term of David E. Bronson who resigned due to pressure of other business. Mr. Bronson has been president of the board of trustees since 1948.

A resolution was passed at the directors' meeting expressing deep appreciation for the service rendered by Mr. Bronson to the Minnesota Hospital Service Association (Blue Cross), its subscribers, and contracting hospitals.

Clyde M. Jorgenson has been a member of the Blue Cross board of trustees since 1940. He also served in the capacity of treasurer of the Association and was active on various committees since his election to the board.

Mr. Jorgenson is president of the Fourth Northwestern National Bank of Minneapolis, and is treasurer of the board of trustees of Fairview Hospital, Minneapolis, and chairman of Fairview's recent building campaign.

HOSPITAL NEWS

Dedication ceremonies for the opening of the new **Meeker County Memorial Hospital** at Litchfield were held at the Litchfield High School auditorium on May 18. The dedication was followed by an open house at the hospital.

* * *

New additions to **St. John's Hospital,** Saint Paul, will be ready for use by late August. The entire project includes remodeling of the original hospital building. The installation of a nurse-to-patient intercommunication system has been approved. With the system a patient may phone the nurse at her desk and thus save her a trip from desk to patient to ascertain the patient's needs.

* * *

Miller Hospital, Saint Paul, has opened two of the floors provided by its new addition, and the third is expected to be open by September. New operating rooms, x-ray quarters, laboratory, space for surgical and medical supplies and a pharmacy will also be opened in September. An additional thirty beds being installed on the sixth floor will be available by November.

* * *

Open house was held at the new **Community Memorial Hospital** at Winnebago on May 17. To residents of the area the eighteen-bed, $150,000 structure represents a "seven-year dream come true." Plans for the hospital, which was built without the aid of federal funds, were first made by local civic leaders in 1945. The necessary money was raised by several fund drives over a period of years.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

(Books Received for Review)

SURGICAL GYNECOLOGY. A Handbook of Operative Surgery. Including Important Obstetric Operations. J. P. Greenhill, M.D., Professor of Gynecology, Cook County Graduate School of Medicine; Attending Gynecologist, Cook County Hospital; Attending Obstetrician and Gynecologist, Michael Reese Hospital. 359 pages. Illus. Price $8.50, cloth. Chicago: Year Book Publishers, Inc., 1952.

ADVANCES IN PEDIATRICS. Volume 5. Editor: S. Z. Levine, Cornell University Medical College, New York; Associate Editors, Allan M. Butler, Harvard Medical School, Boston; Margaret Dann, Cornell University Medical College, New York; L. Emmett Holt, Jr., New York University College of Medicine; A. Ashley Weech, University of Cincinnati College of Medicine, Ciicinnati. 273 pages. Illus. Price $7.00, cloth. Chicago: Year Book Publishers, Inc., 1952.

THE FIGHT AGAINST TUBERCULOSIS. An autobiography. Francis Marion Pottenger, M.D. 276 pages. Price $4.00, cloth. New York: Henry Schuman, 1952.

BACITRACIN. A review and digest of the literature up to and including January, 1952. 127 pages. Illus. Cloth binding. New York: S. B. Penick & Co., 1952.

THE SCALP IN HEALTH AND DISEASE. Howard T. Behrman, A.B., M.D. Assistant Clinical Professor of Dermatology, New York University Post-Graduate Medical School; Adjunct Dermatologist, Mount Sinai Hospital; Attending Dermatologist, Hillside Psychiatric Institute; Formerly Associate Dermatologist, Bellevue Hospital and Assistant Attending Dermatologist, University Hospital; Fellow in Dermatology, New York Academy of Medicine; Member, Committee on Cosmetics, American Medical Association; Society of Cosmetic Chemists; Society for Investigative Dermatology; Fellow American Academy of Dermatology; Diplomate, American Board of Dermatology. 566 pages. Illus. Price $12.75, cloth. St. Louis: C. V. Mosby Co., 1952.

DYNAMIC PSYCHIATRY. Transvestism—Desire for Crippled Women. Volume Two. Louis S. London, M.D. 127 pages. Illus. Price $2.50, cloth. New York: Corinthian Publications, Inc., 1952.

VASCULAR DISEASES IN CLINICAL PRACTICE. Second Edition. Irving Sherwood Wright, M.D., Professor of Clinical Medicine, Cornell University Medical College; Attending Physician, The New York Hospital. 552 pages. Illus. Price $8.50, cloth. Chicago: Year Book Publishers, Inc., 1952.

BONE TUMORS. Louis Lichtenstein, M.D., Senior Pathologist, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles. Formerly Associate Pathologist, Hospital for Joint Diseases, New York. Consultant in Bone Tumors, Tumor Registry of the California Medical Association Cancer Commission. Sometime Lecturer in Bone Pathol-

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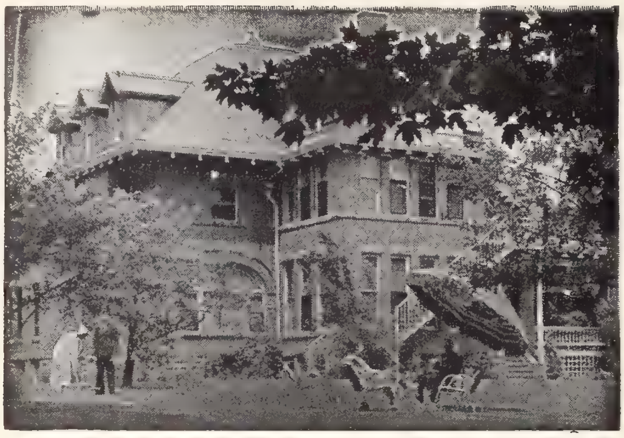

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Dr. L. R. Gowan, M.D., M.S., Medical Director

ogy, Medical Extension, University of California at Los Angeles. 315 pages. Illus. Price $10.50, cloth St. Louis: C. V. Mosby Co., 1952.

THE TOXEMIAS OF PREGNANCY. Second Edition. William J. Dieckmann, S.B., M.D. Mary Campau Ryerson Professor and Chairman of the Department of Obstetrics and Gynecology of the University of Chicago; Chief of Service of the Chicago Lying-In Hospital and Dispensary; Attending Gynecologist, Albert Merrit Billings Memorial Hospital of the University of Chicago; Associate Editor of the American Journal of Obstetrics and Gynecology. 710 pages. Illus. Price $14.50, cloth. St. Louis: C. V. Mosby Co., 1952.

ANNUAL REPORT ON STRESS. By Hans Selye, M.D., Ph.D. (Prague), D.Sc. (McGill), F. R. S. (Canada). Professor and Director of the Institute de Medicine et de Chirurgie experimentales, Universite de Montreal. 511 pages. Illus. Price $10.00. Montreal, Canada: Acta, Inc., 1951.

This is a compilation of material published during 1951 bearing on the author's subject "Stress." It could be made possible only through the great devotion of a very orderly mind to an endocrine thesis which is vigorously criticized by some and defended by others. Whether one agrees with Dr. Selye or not bears no relation to the value of the work. It is an annual of real importance to those who have an interest in autonomic dysfunction and endocrinology.

JEROME A. HILGER, M.D.

PARACELSUS: MAGIC INTO SCIENCE. By Henry M. Pachter. 360 pages. Illus. Price $4.00. New York: Henry Schuman, 1951.

A restless rebel was Paracelsus. He was a man not content with accepting others' conclusions without knowing the "why" of them, and he had the unfortunate knack of antagonizing even those who would be his friends.

The author, a cultural historian, has attempted to present this Faustian legendary personage in an objective fashion. It is not his aim to make of him a hero or a blasphemous quack but to reveal him as a real human being in a 16th Century setting as "he faced the problems of his own days."

This book, which was the August, 1951, selection of the Book Find Club, appeals especially to those interested in the history of philosophy and ideologies and in how the same intellectual struggles are apparently repeated in each age. It is intended to be both popular and scholarly. The many notes and appendices are placed at the end of the volume so that they do not clutter up the text for those who skim, but are available to those who prefer to go into the subject more deeply.

There are a number of black and white reproductions of old woodcuts of that age suitable to the text.

To those who unthinkingly regard chemotherapy and modern psychiatry to be inventions of this age, the book is a sharp reminder of that old Biblical quotation, ". . . and there is no new thing under the sun."

M. P.

CAREERS IN SERVICE . . . to the Handicapped. Information for Vocational Guidance Specialists on the Professions of Physical Therapy, Occupational Therapy, Speech and Hearing Therapy and Special Education. 53 pages. Price 50 cents. Chicago: The National Society for Crippled Children and Adults, Inc., 1952.

In recent years the American public has been made increasingly aware of its social responsibilities, among them the provision of services to the handicapped. Public awareness of the critical need for professional workers to perform these services has not yet extended to our schools and colleges, where young people are debating which career to enter.

Students, teachers, and vocational counselors today have heard about the national shortage of nurses and physicians, our oldest health services. Fewer of them

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are acquainted with the equally pressing need for other professional members of the "rehabilitation team"—the occupational therapists, physical therapists, speech and hearing therapists, psychologists, vocational counselors, special educators, social workers, and others. Nor have they been as well informed about the duties, qualifications, opportunities, and rewards in these newer fields of work.

Such information, both comprehensive and well-organized, is provided in a readable and attractively illustrated little book recently published by the National Society for Crippled Children and Adults and the National Foundation for Infantile Paralysis, with the cooperation of the Office of Vocational Rehabilitation of the Federal Security Agency. In this booklet, *Careers in Service . . . to the Handicapped,* four fields of work have been discussed which are devoted primarily to services for handicapped children and adults. These are Occupational Therapy, Physical Therapy, Special Education, and Speech and Hearing Therapy.

All are fields in which personnel shortages exist and are likely to exist for years to come, and all are fields for which specialized post-high school training is necessary. Each is treated in conformity with the N.V.G.A. standards for the preparation of occupational monographs, adequate coverage being given to duties performed, need for workers, qualifications and training required, salaries and working conditions, places of employment, and approved training facilities. An additional section is devoted to placement services of various professional organizations.

Other useful occupational materials have been published in each of these four fields of work. It is believed, however, that the comprehensiveness and organization of *Careers in Service . . . to the Handicapped,* and the fact that it brings these related occupations together under one cover for comparative analysis, will make it a favored reference for the occupations library and for the counselor of young people. It is perhaps better suited for students' reading at the college level.

FRANK M. FLETCHER, JR., *Director,*
Occupational Opportunities Service,
Ohio State University

PRACTICAL CLINICAL PSYCHIATRY. By Edward A. Strecker, Litt. D., LL. D., M.D., Professor of Psychiatry, School of Medicine, University of Pennsylvania; Franklin G. Ebaugh, M.D., Professor of Psychiatry, University of Colorado, School of Medicine and Director, Colorado Psychopathic Hospital; and Jack R. Ewalt, M.D., Professor of Neuro-Psychiatry and Administrator of Hospitals, University of Texas Medical Branch, Galveston. 7th ed. 506 pages. $7.00 Philadelphia: The Blakiston Co., 1951.

Edited by psychologically oriented psychiatrists, this book contains a minimal introduction to psychoanalytic concepts. It is a revision which is generally useful because the book was designed to furnish a frame of reference for non-psychiatric medical practitioners. A new chapter on "Support" psychotherapy is of special interest in that concrete examples are included to illustrate how it is possible to gain relief from functional illness without psychoanalytic therapy.

J. YAMAMOTO, M.D.

The SERPENT-WREATHED STAFF. A novel. By Alice Tisdale Hobart. 402 pages. Price $3.50. New York: Bobbs Merrill Co., 1951.

If Mrs. Alice Tisdale Hobart had managed to devise a suitable ending for her 402-page novel, "The Serpent-Wreathed Staff," about sixty pages sooner than she did, a tolerant critic would be able to say that she had written a faulty but highly interesting story of human conflicts and loyalties.

Unfortunately, however, the latter part of the book degenerates swiftly and recklessly into an amazing propaganda piece for National Compulsory Health Insurance. The last forty or fifty pages sound as if Mrs. Hobart knocked them out hastily at a desk piled high with pamphlets, speeches and news releases handed out by Federal Security Administrator Oscar Ewing and the Committee for the Nation's Health.

This uncraftsmanlike abuse of artistic license, added to some of the implications built up in earlier pages, creates the impression that the entire novel was designed as a subtle presentation of the case for Socialized Medicine. As a result, Mrs. Hobart undermines much of the validity that does exist in some of the earlier parts of this book about doctors, modern medicine and a changing world.

According to the significant publisher's blurb on the jacket of the book, the author's "continuing interest is in the collision of change with the existing order and the powerful forces supporting it." Then, providing a further clue to Mrs. Hobart's viewpoint, it quotes her as saying:

"I might have chosen some other profession or business. I chose medicine because it illustrates the theme so perfectly. The revolutionary upthrust which is characteristic of America since its founding meets in medicine an almost impenetrable crust of tradition, especially in the social field. On the screen of the medical profession may be thrown the story of the human heart in its most lonely aspect."

A good indication of how accurately, impartially and artistically the author has carried out her task is evident in the reaction of the *CIO News,* an organ which has been a raucous advocate of Compulsory Health Insurance and a relentless critic of the medical profession. In the January 7, 1952, issue of the *CIO News,* a book review by Hollace Ransdell concludes with the following paragraph:

"'The Serpent-Wreathed Staff' is the first attempt, I believe, to tell the story of the fight for group health and health insurance plans in fiction form. It does it competently and interestingly, and should do much to bring understanding of the real issues in the fight for better medical care for all the American people and the campaign being waged to defeat it."

Such an accolade from a source which consistently has taken an extremist position on those "real issues" is indicative of just how much real "understanding" Mrs. Hobart has contributed to the over-all problem of medical care in this country.

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Despite her failure to give a true interpretation of the social and economic developments in medicine today, the author shows her usual skill in weaving a plot and telling a story. She is at her best when describing the personal problems and struggles, the emotional triumphs and defeats, of her principal characters. On this fictional level the book has undeniable merit and strength, for the reader finds himself sharing the fears, anxieties and grief of the people in the novel.

Mrs. Hobart drags in so many problems and projects in such a short space of time that she fails to do justice to any of them, either as a novelist or as an objective reporter of the American scene today. Among the many ingredients, skillfully mixed in, are racial discrimination against Jews and Negroes, mob psychology, group practice, a group hospital, professional ethics, preventive medicine, Voluntary Health Insurance, Government Health Insurance, treatment of the patient's spirit as well as his body, and a host of additional problems, issues and concepts.

As all of these elements are woven deftly into the novel, their manner of presentation builds the subtle implication—even in the earlier parts of the book—that most doctors are primarily and selfishly interested in making money, bolstering their own reputations and preserving the status quo in medicine.

Mrs. Hobart also gives the impression that group practice, health insurance plans, preventive medicine and similar ideas are brand new developments—practically untried and unheard of in a present-day American city. Actually, most of the concepts and projects which occur to Alan Towne, in sudden flashes of inspiration, are part of the knowledge of any alert medical student. Actually, the industrialists and businessmen on Alan's hospital board are utterly untypical when they talk and act as if they had never heard of such a thing as group health insurance for their employes.

Before Mrs. Hobart writes another novel on this subject, someone should familiarize her with the major facts and realities in the field of modern medical economics.

Someone, for example, should tell her about the many famous clinics and countless other forms of group practice which are in successful operation throughout the country, some of them since around the turn of the century.

Someone should tell her about the hundreds of fast-growing, constantly improving Voluntary Health Insurance plans, which by the end of this year will be protecting an estimated 90 million Americans against the major costs of illness and accidents.

Someone should tell her about the Nationwide progress of State and County Medical Societies in setting up doctor placement programs, grievance committees, emergency call systems, cost adjustment committees, local health units and a variety of other activities designed to make good medical care available to all the people.

Incidentally, someone also should inform Mrs. Hobart that the "National Medical Association," a name which she uses as a pseudonym for the American Medical As-

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sociation, is the actual and proper name of the National organization of Negro physicians.

But Mrs. Hobart, unmindful of such trivia as facts and accuracy, writes furiously on, and after only two or three years of struggle in group practice and as head of a group hospital, Dr. Alan Towne is an advocate of Government Health Insurance. Apparently neither the author nor the good young doctor sees the glaring contradiction between Government medicine and Alan's own philosophy of careful, personalized treatment of the whole patient, in mind and spirit as well as in body.

The book becomes a completely unsubtle rehash of all the distorted, discredited propaganda for National Compulsory Health Insurance. It also gives an inaccurate, unfair picture of the purposes and methods of the American Medical Association's National Education Campaign. It fails to mention that the doctors' campaign against Socialized Medicine has won growing, Nationwide support from the American people ever since it began in January, 1949.

Everyone interested in American medicine, and in the effort to find intelligent solutions to our medical care problems, should read "The Serpent-Wreathed Staff"—if for no other reason than to help repair the damage which the book does.

Read simply as a novel, it is a moving, absorbing story. Read as a source of information affecting public opinion on medical-economic issues, it unfortunately is an example of careless, superficial writing, with a built-in conclusion contrary to the convictions of the great majority of Americans today.

F. B. E.

* * *

GOVERNMENT GIVES NOTHING FREE

With his plan for socialized medicine blocked for the moment, Federal Security Administrator Ewing has turned his sights on another scheme, socialized higher education.

He wants the federal government to finance scholarships for 50,000 high school graduates every year, and the President is backing him by putting 30 million dollars in the budget to pay for the scheme.

Commenting on the proposal, the Charlotte (N. C.) *Observer* said, editorially: "It has long been an accepted principle that public education is the function of the state and not of the federal government. But not until Oscar Ewing came on the scene was it ever suspected that the United States government was obligated to provide a college education for anybody.

"Whenever Mr. Ewing comes forward with one of his devices to give Washington bureaucrats a stranglehold on another aspect of life in this so-called free America, we should remember that the Supreme Court has held that the Federal Government has a right to regulate whatever it subsidizes."—AMA Secretary's Letter, May 16, 1952.

NEW MEDICAL FILMS

Several important medical and health films are now available to state and county medical societies through the AMA's Committee on Medical Motion Pictures. Films for the lay audience include "Be Your Age" (heart disease), "Breakdown" (mental health), "Man's Greatest Friend" (animal experimentation on rabies), and "The Nation's Mental Health." Suitable for professional meetings are "Function Anatomy of the Hand," "The Quiet One" (psychiatry), "Sciatic Pain and the Intervertebral Disc," and "Shades of Gray" (psychiatry). These films are available on a service charge basis. An up-to-date and complete list of all films added to the library in the last few months can be obtained from the committee.

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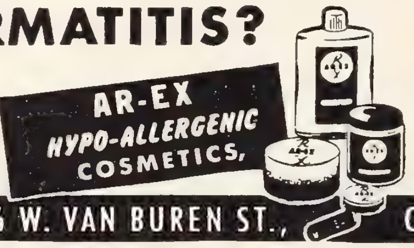

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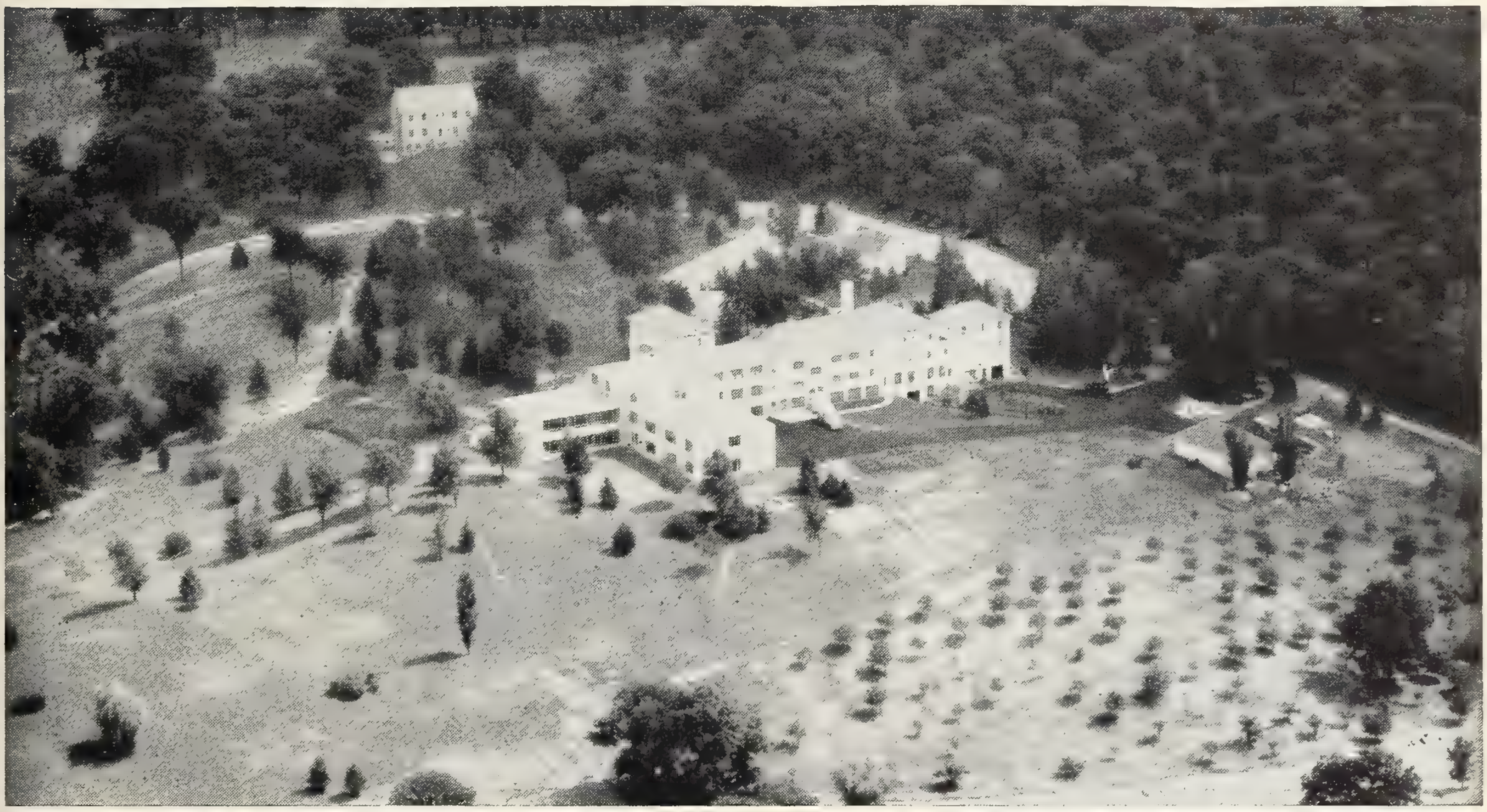

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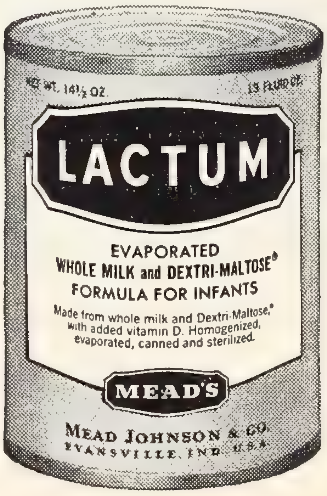
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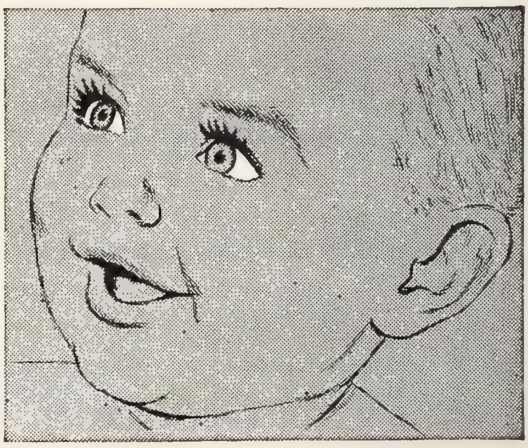

*Frost, L. H., and Jackson, R. L.: Growth and Development of Infants Receiving a Proprietary Preparation of Evaporated Milk with Dextri-Maltose and Vitamin D, J. Pediat. 39:585-592 (Nov.) 1951.

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Minnesota Medicine

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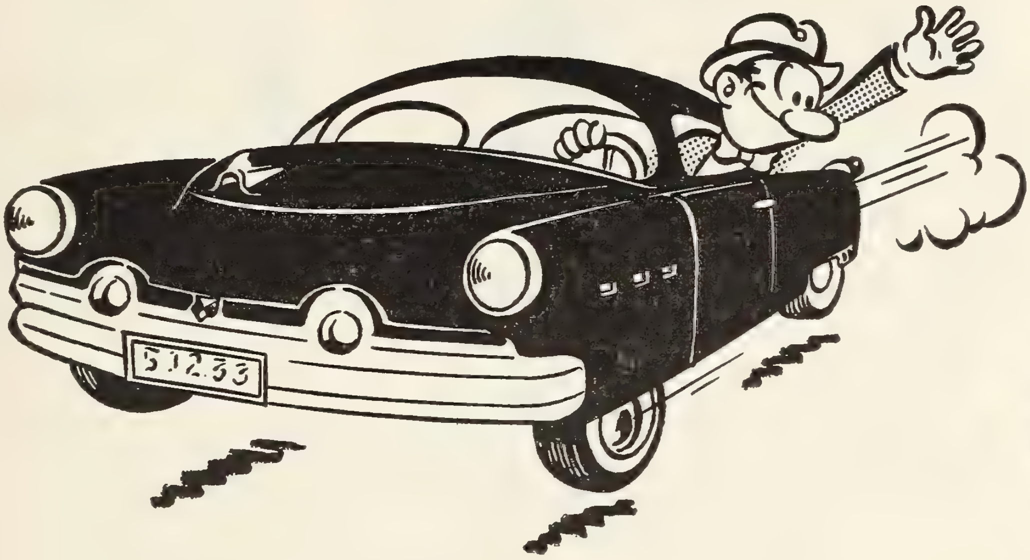

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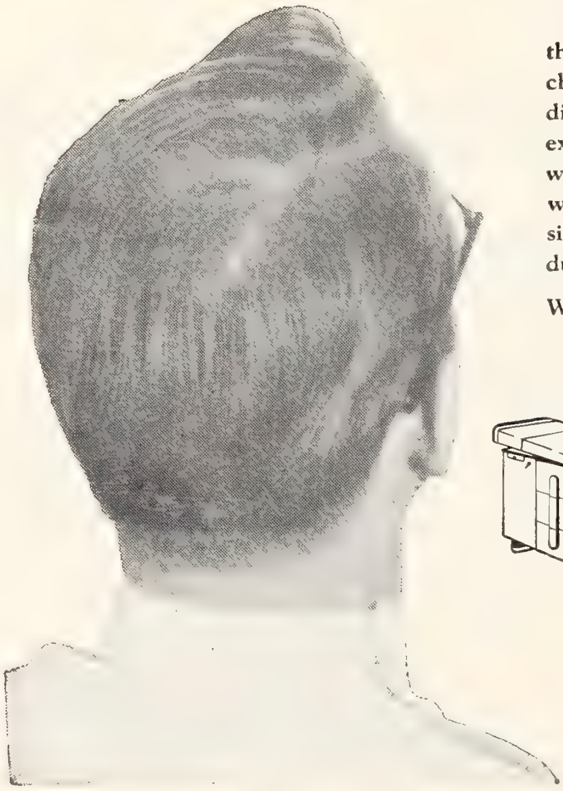

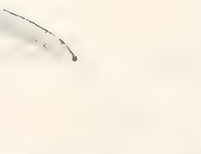

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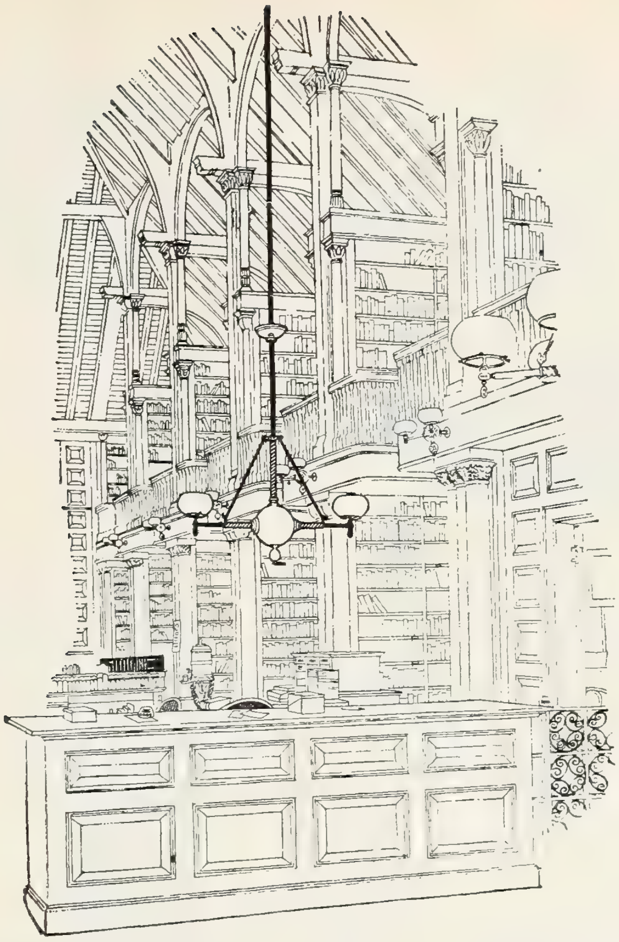

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1. *Perloff, Wm. H. (1951), Treatment of the Menopause. II. American J. Obst. & Gynec., 61:670, March.* **2.** *Reich, W. J., et al. (1951), A Recent Advance in Estrogen Therapy. I. American J. Obst. & Gynec., 62-427, August.*

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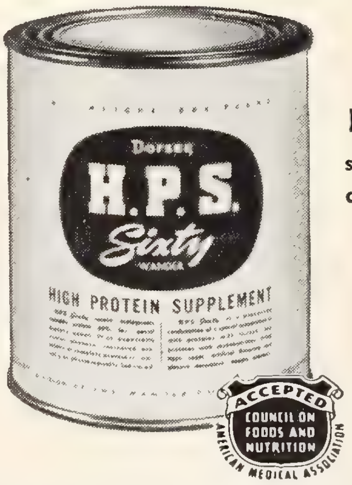

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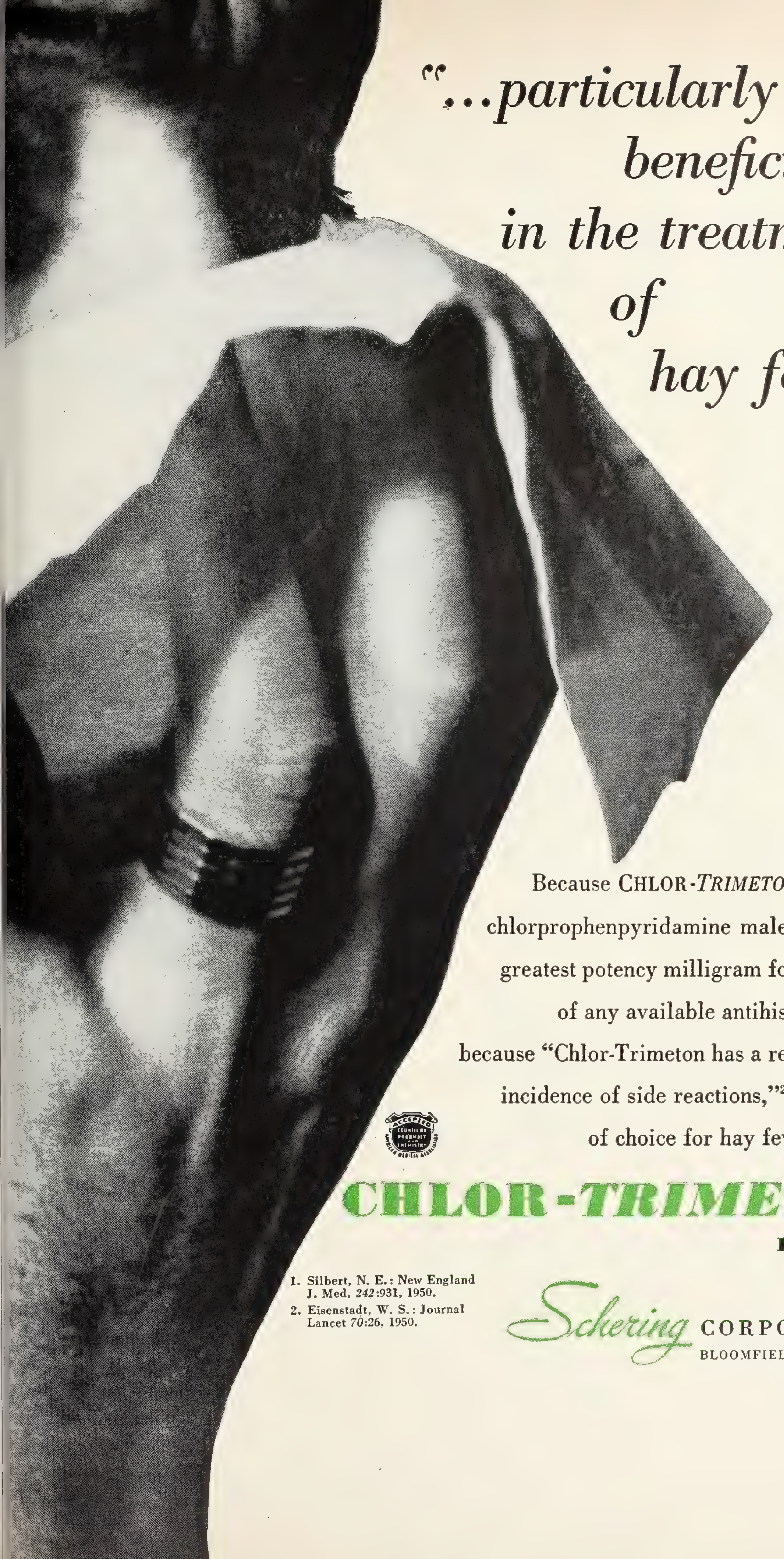

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2. Eisenstadt, W. S.: Journal Lancet *70*:26, 1950.

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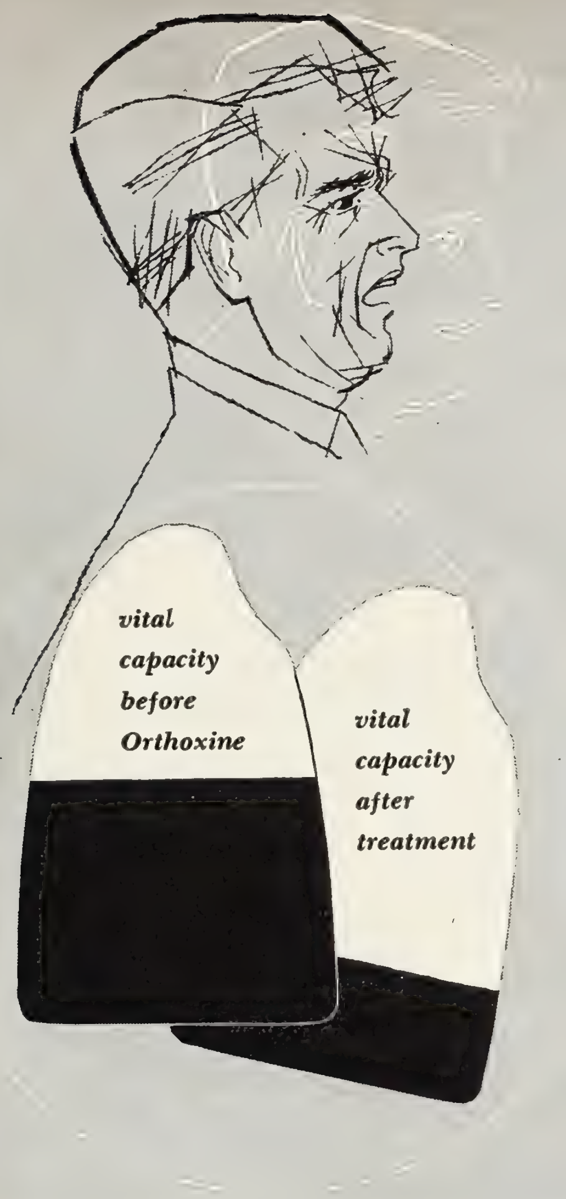
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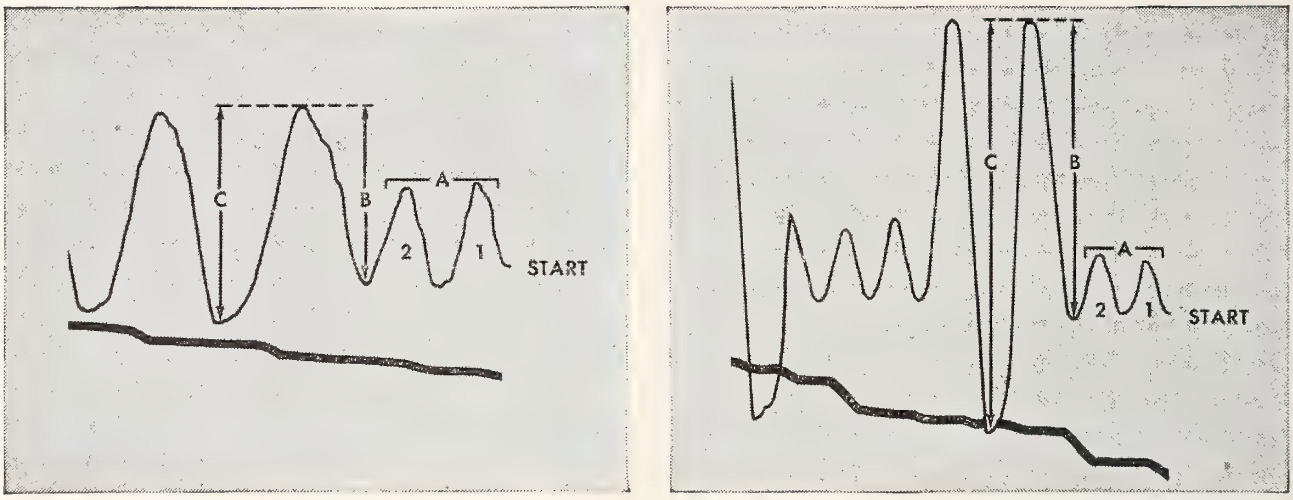

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Schwartz, E., *J.A.M.A.* **147**: 1734–1737. Dec. 29, 1951.

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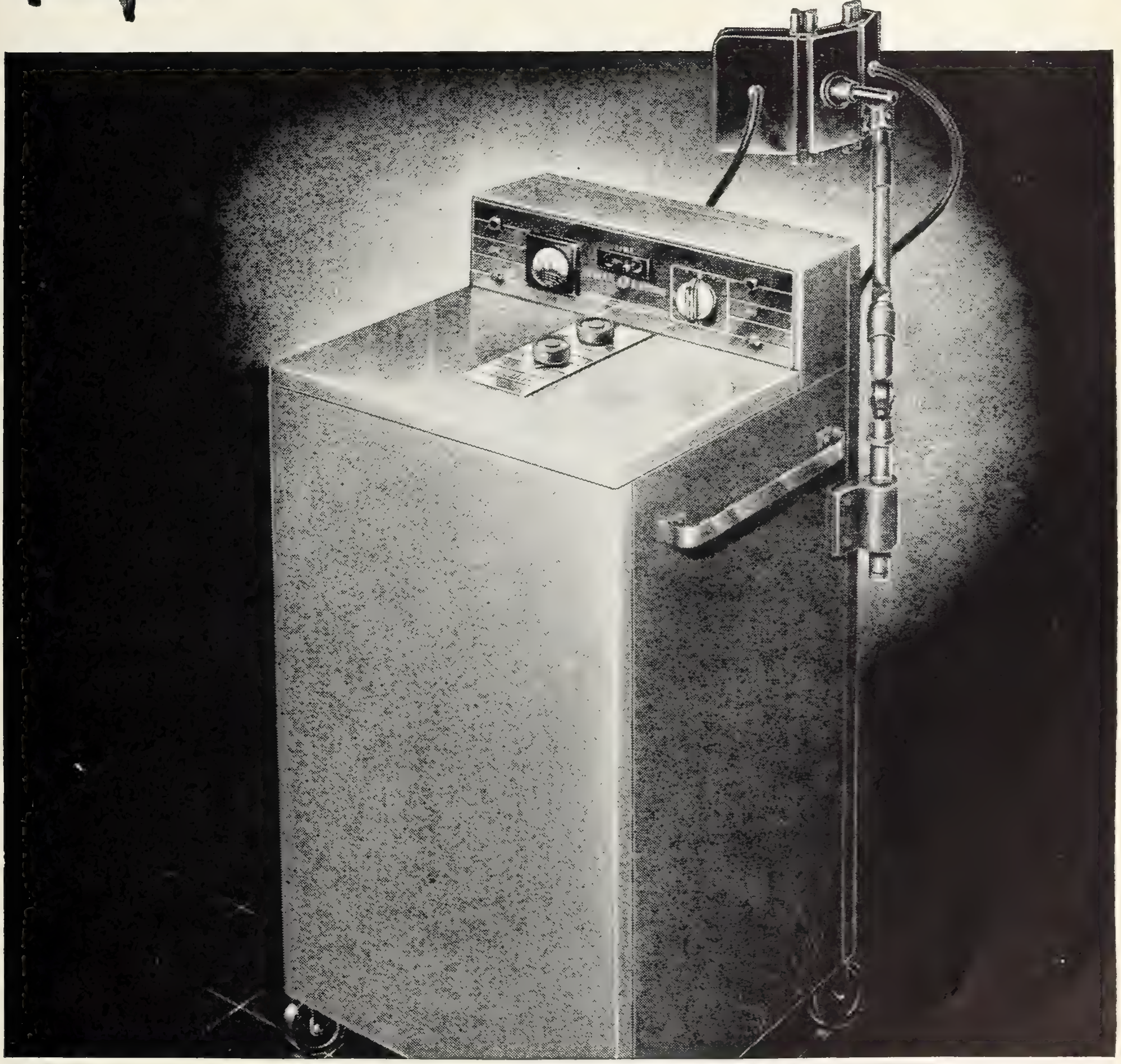

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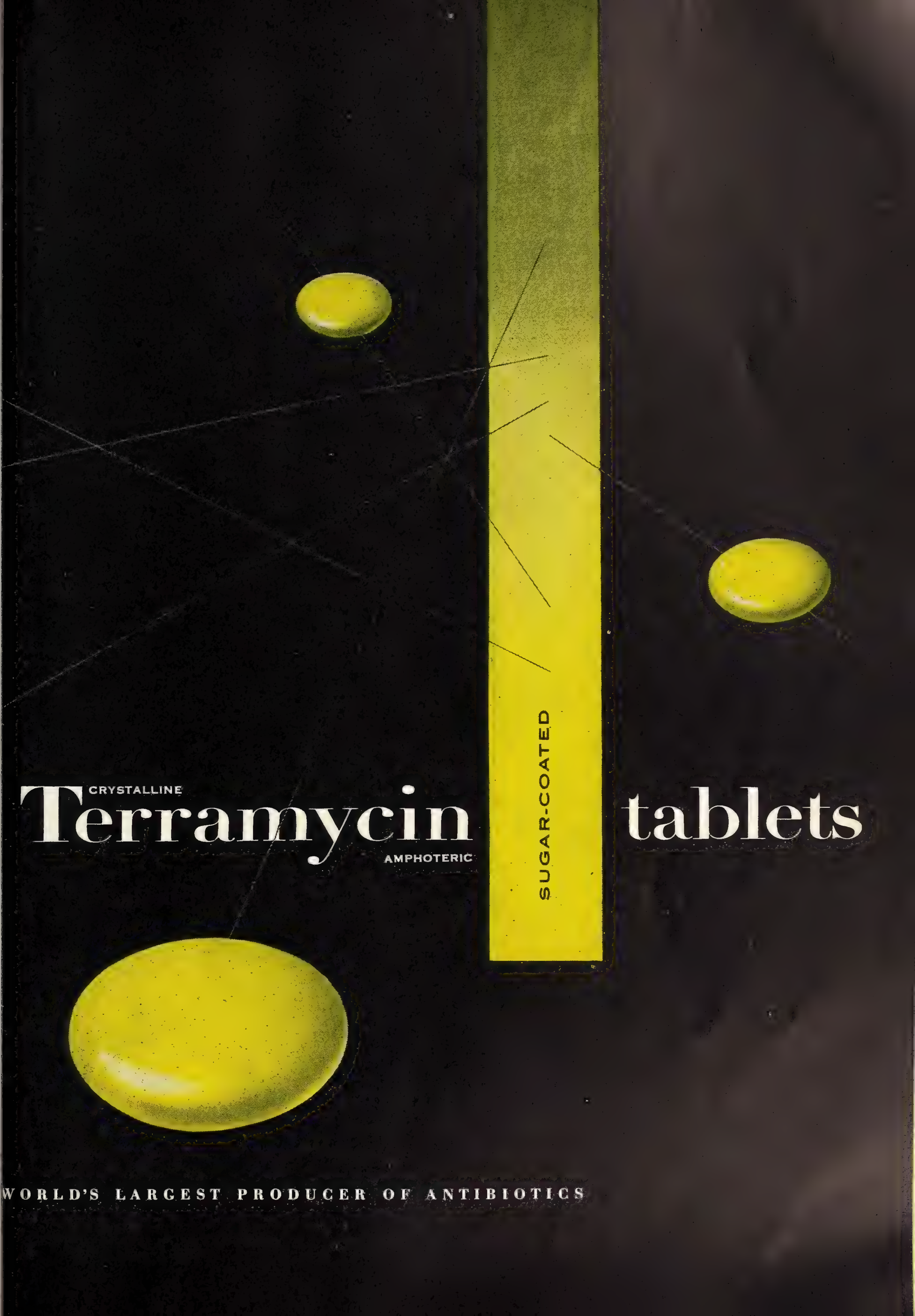

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 July, 1952 Number 7

ABUSES OF CORTISONE AND CORTICOTROPIN

ROBERT M. SALASSA, M.D.
Rochester, Minnesota

CORTISONE and corticotropin (ACTH) are active biologic substances which directly or indirectly affect many tissues and physiologic processes of the body.[13,26,27] Adequate clinical and experimental evidence demonstrates that either an excess or a deficiency of these hormones results in various pathologic changes. Convincing evidence also exists that the quantity of these hormones which is necessary to maintain homeostasis and a state of health may vary under different circumstances, and that the quantity of cortisone or similar hormones produced by the cortex of the adrenal gland can be altered by a variety of stimuli.

While the effects of corticotropin and cortisone that have been described to date justify such general statements as those above, little is known concerning the precise mode of action of these hormones. Likewise, though many physicians have acquired extensive experience with the use of cortisone and corticotropin during the past three years, the limits of therapeutic usefulness and the hazards of these hormones are not yet precisely defined. Consequently, any discussion of the abuses and hazards of the use of corticotropin and cortisone at this time represents only a current appraisal of a rapidly developing subject.

Contraindications

In view of the extremely broad physiologic and clinical effects of cortisone and corticotropin, it is not surprising that patients with some diseases would be adversely affected, and that the presence of these diseases would constitute at least a relative contraindication to the use of the hormones. A number of these contraindications exist but only peptic ulcer, tuberculosis and emotional disturbances will be considered.

Gastrointestinal Ulceration.—In 1945, Ingle and his associates[16] observed deep ulcers in the prepyloric portion of the stomachs of two rats that had received large doses of compound F. One rat also had several ulcers in the cecum. Gastrointestinal ulceration in rats subjected to various forms of stress has been described by Selye,[23] and it has been postulated that excess secretion of adrenal cortical hormones was a factor in the development of ulceration.

Gray and associates[8] observed that, when corticotropin in doses ranging from 100 to 160 mg. was administered intramuscularly daily to normal persons for periods of three to four weeks, there was an increase of approximately 200 per cent in basal and nocturnal gastric secretion of acid and pepsin. Oral and parenteral administration of 250 mg. of cortisone daily to normal persons resulted in a similar gastric response. The maximal effects on gastric secretion of acid and pepsin were observed after seven to fourteen days of administration of the hormones.

Since the advent of therapy with corticotropin and cortisone, a number of reports[1,8,9,18,24] have appeared which describe massive gastric hemorrhage and the onset, reactivation or perforation of peptic ulcers during treatment with these hormones. In some of these cases, there was evidence of previous peptic ulcer, while in others there was nothing in the history to suggest that

---

From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

Read in the Symposium on the Abuses of New Therapeutic Agents at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 26, 1952.

the patient had peptic ulcer prior to treatment with corticotropin or cortisone.

While coincidence cannot as yet be excluded completely, the reports just mentioned constitute strong circumstantial evidence that gastrointestinal ulceration and hemorrhage may be complications of therapy with corticotropin and cortisone and that administration of these hormones may be hazardous for the patient with peptic ulcer.

Tuberculosis.—A number of investigations[10,20,-25] have been reported in which administration of cortisone to animals before and after such animals were inoculated with Mycobacterium tuberculosis resulted in the occurrence of more extensive lesions or a higher mortality than was noted in a similarly inoculated group of control animals that did not receive cortisone. Freeman and associates[6] observed that while the systemic symptoms in patients with disseminated infiltrative pulmonary tuberculosis were ameliorated by administration of corticotropin, the sputum continued to show acid-fast bacilli. In one patient there was a definite spread of the pulmonary lesion during such therapy. Symptomatic improvement and a general feeling of well-being occurred in thirteen patients with advanced pulmonary tuberculosis who were treated with corticotropin and para-aminosalicylic acid.[29] However, roentgenologic examination in these cases indicated a greater tendency to cavitation. Rapidly progressive fatal pulmonary tuberculosis has been reported in one patient who received cortisone and in one patient who received corticotropin for rheumatoid arthritis.[5,17] During treatment with cortisone for arthritis, another patient with apparently arrested pulmonary tuberculosis experienced formation of a cavity and appearance of Mycobacterium tuberculosis in the sputum.[21]

Present evidence suggests that, in some unknown manner, cortisone is capable of suppressing the reaction of inflammation that occurs in response to a wide variety of different agents. If such reaction of inflammation is undesirable and detrimental, then cortisone and corticotropin, by virtue of this suppressive effect, would favorably modify the disease in question. However, if the changes produced by inflammation are desirable or protective, then cortisone and corticotropin might adversely affect the patient. While there is not sufficient evidence at present to justify a definite conclusion, the use of these hormones in most patients with tuberculosis is best avoided.

Emotional Disturbances.—Numerous reports[2,11,19,22,27] have called attention to the elevation of mood and euphoria which frequently accompany therapy with corticotropin or cortisone. This elevation of mood or euphoria seems to be the most frequent psychologic response to therapy with cortisone and corticotropin, and its presence usually does not present a serious problem. However, other more profound and serious psychologic disturbances have been observed occasionally during therapy with these hormones.[22] Psychoneurotic or frankly psychotic reactions may occur. Rome and Braceland[22] were of the opinion that the incidence of psychosis and psychoneurosis in patients who received corticotropin and cortisone probably exceeds the incidence of these reactions that would be expected in a group of patients who did not receive these hormones.

Rome and Braceland[22] also pointed out that the pattern of the psychologic response to therapy with corticotropin and cortisone is dependent on many elements. In their opinion, one of the most important factors that determine the clinical form of this response is the previous organization of the patient's personality. They observed that the psychotic reactions apparently occurred in patients who displayed evidence of marginal psychologic adjustment in the past. In view of these reports, it appears wise to avoid administration of cortisone and corticotropin in chronic diseases such as rheumatoid arthritis when these diseases occur in patients who are emotionally ill or who give a history of former serious emotional illness.

Since the presence of some diseases constitutes a relative contraindication to the use of cortisone and corticotropin, a careful and thorough general examination should always precede prolonged therapy with these hormones. The history should include careful evaluation of present and past gastrointestinal complaints and disturbances. Likewise, the physician should evaluate the patient's present emotional status and include in the history a survey of any past emotional illnesses as well as the patient's past general psychologic adjustment. The general examination should also include either roentgenographic or roentgenoscopic examination of the thorax unless the patient has recently had such an examination. Probably one of the more frequent abuses of cortisone and corticotropin in the therapy of chronic disease is the omission of a careful general examination before a prolonged course of therapy is begun.

Dosage

Present evidence indicates that what might be an ideal dose of cortisone or corticotropin in some situations would not be the ideal dose in other situations. The various doses indicated for the use of cortisone in chronic adrenal insufficiency, in diseases without adrenal insufficiency and during periods of induced adrenal suppression will be discussed.

Chronic Adrenal Insufficiency.—Patients with chronic adrenal insufficiency that is due to primary disease of the adrenal gland or that is secondary to insufficiency of the anterior part of the pituitary gland show an excellent clinical response to small doses of cortisone. Usually, the daily maintenance dose is 25 mg. or less of cortisone, given orally in divided doses. Some patients do well on as little as 10 mg. of cortisone per day and others require 20 to 25 mg. per day. Not only do these patients feel well on small doses of cortisone, but they appear to be quite sensitive to the hormone and do not tolerate large daily doses. While the activity of orally administered cortisone is rapid in onset, the duration of its activity is relatively short. This fact is not generally appreciated. Two common errors in the use of cortisone by mouth in the therapy of chronic adrenal cortical insufficiency are the administration of an excessive dose and the utilization of a single dose rather than divided doses.

While administration of 25 mg. or less of cortisone provides good clinical response under ordinary circumstances in patients with chronic adrenal insufficiency, this is an inadequate dose under conditions of stress such as are encountered in serious injury, surgical procedures, acute illness and the crises of adrenal insufficiency. Under these circumstances, doses of 100 to 200 mg. daily are usually required.

Diseases Without Adrenal Insufficiency.—In contrast to the small group of patients just mentioned who receive cortisone as a form of replacement therapy, most patients receive cortisone and corticotropin in an attempt to modify favorably diseases in which there is at present no good evidence of adrenal cortical dysfunction or insufficiency. If the disease is acute and self-limited and treatment is necessary for only a short period, the clinical symptoms can usually be suppressed successfully by the use of relatively large doses of cortisone and corticotropin without production of significant undesirable effects.

However, a more difficult problem is presented by chronic diseases, in which prolonged therapy is required. All too often, the dose of cortisone or corticotropin which controls completely the clinical symptoms also produces significant undesirable effects when it is administered continuously for long periods. Most physicians[2,3,7,30] who have had extensive experience with the use of these hormones in rheumatoid arthritis, for example, do not attempt to maintain complete suppression of the clinical symptoms by means of continuous administration of large doses. The present trend is to use a dose of cortisone or corticotropin that gives reasonable but not necessarily complete control of the symptoms and that is small enough to avoid significant undesirable effects when given over a prolonged period. In the experience of Ward, Slocumb, Polley and Hench,[30] the average long-term maintenance dose can seldom exceed the limits of 50 mg. per day for menopausal or postmenopausal women, 62.5 mg. per day for other women and 87.5 mg. per day for men, without producing significant undesirable effects.

Adrenal Suppression.—Convincing evidence exists that the administration of cortisone leads to temporary suppression of function of the adrenal cortex.[4,12,14,15,28] The minimal dose and the shortest period of administration required to suppress the adrenal glands are uncertain. However, once suppression occurs, it probably is maintained by even relatively small doses and may even persist for several months after administration of cortisone is discontinued. During this period of adrenal cortical suppression, the patient's endogenous supply of cortisone or similar hormones is limited. While the patient may show no evidence of adrenal cortical insufficiency under ordinary circumstances during this period, unusual stress associated with such conditions as major injury, operative procedures, burns or acute severe illness may precipitate acute adrenal insufficiency. Consequently, during such episodes of stress occurring in this period of adrenal cortical suppression, not only must administration of cortisone be continued but the dose should be increased. In preparation for major surgical procedures in patients who have recently been given cortisone or who are receiving maintenance doses of cortisone, it is the practice at the Mayo Clinic to give 200 mg. of cortisone intramuscularly forty-eight and twenty-four hours before operation and again on the morning of operation. After operation, the dose is reduced as rapidly as the condition of the patient will permit.

In the treatment of rheumatoid arthritis or other chronic diseases with cortisone, the following points in regard to regulation of the dose should be kept in mind:

1. The dose should be individualized to meet each patient's need and tolerance for cortisone, and the aim of treatment should be reasonable but not necessarily complete control of symptoms.

2. Multiple spaced doses should be utilized for oral administration of cortisone.

3. Sudden and drastic reduction of the dose should be avoided.

4. The patient who has been receiving maintenance doses of cortisone or in whom cortisone therapy has recently been discontinued will need additional supportive therapy during periods of stress.

I should like to caution against the use of these hormones in the treatment of undiagnosed illnesses. Because of the ability of cortisone and corticotropin to suppress or alter the symptoms of many diseases, it is not surprising that physicians are tempted to use these hormones prematurely when diagnosis is difficult and delayed. Patients with undiagnosed states of fatigue, with skeletal or muscular pain of unknown etiology, or with general malaise and low-grade fever of undetermined origin are among those who most often receive these hormones without benefit of a diagnosis. The premature use of these hormones not only is hazardous but may alter the clinical picture to such an extent that diagnosis is made even more difficult. In the latter case, the patient may be denied the benefit of more effective specific therapy. In light of the broad effects of cortisone and corticotropin, it would seem unjustified except in the most unusual circumstances to use these hormones before establishment of a diagnosis.

References

1. Beck, J. C.; Browne, J. S. L.; Johnson, L. G.; Kennedy, B. J., and MacKenzie, D. W.: Occurrence of peritonitis during ACTH administration. Canad. M.A.J., 62:423-426 (May) 1950.
2. Boland, E. W., and Headley, N. E.: Management of rheumatoid arthritis with smaller (maintenance) doses of cortisone acetate. J.A.M.A., 144:365-372 (Sept. 30) 1950.
3. Copeman, W. S. C.; Savage, Oswald; Bishop, P. M. F.; Dodds, E. C.; Kellie, A. E.; Stewart, J. W.; Glyn, J. H. H.; Henly, A. A., and Tweed, J. M.: Observations on prolonged cortisone administration in rheumatoid arthritis. Brit. M. J., 1:397-402 (Feb. 23) 1952.
4. Forsham, P. H.; Thorn, G. W.; Frawley, T. H., and Wilson, L. W.: Studies on the functional state of the adrenal cortex during and following ACTH and cortisone therapy. (Abstr.) J. Clin. Investigation 29:812-813 (June) 1950.
5. Fred, Leo; Levin, M. H.; Rivo, J. B., and Barrett, T. F.: Development of active pulmonary tuberculosis during ACTH and cortisone therapy. J.A.M.A., 147:242-246 (Sept. 15) 1951.
6. Freeman, Smith; Fershing, Jennings; Wang, C. C., and Smith, L. C.: The effect of ACTH on patients with pulmonary tuberculosis. In Mote, J. R.: Proceedings of the First Clinical ACTH Conference. Pp. 509-520. Philadelphia: Blakiston Company, 1950.
7. Freyberg, R. H.; Traeger, C. H.; Patterson, M.; Squires, W.; Adams, C. H., and Stevenson, C.: Problems of prolonged cortisone treatment for rheumatoid arthritis: further investigations. J.A.M.A., 147:1538-1543 (Dec. 15) 1951.
8. Gray, S. J.; Benson, J. A., Jr.; Reifenstein, R. W., and Spiro, H. M.: Chronic stress and peptic ulcer. I. Effect of corticotropin (ACTH) and cortisone on gastric secretion. J.A.M.A., 147:1529-1537 (Dec. 15) 1951.
9. Habif, D. V.; Hare, C. C., and Glaser, G. H.: Perforated duodenal ulcer associated with pituitary adrenocorticotropic hormone (ACTH) therapy. J.A.M.A., 144:996 (Nov. 18) 1950.
10. Hart, P. D'A., and Rees, R. J. W.: Enhancing effect of cortisone on tuberculosis in the mouse. Lancet, 2:391-395 (Sept. 23) 1950.
11. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: The effect of a hormone of the adrenal cortex (17-hydroxy-11-dehydrocorticosterone: Compound E) and of pituitary adrenocorticotropic hormone on rheumatoid arthritis: preliminary report. Proc. Staff Meet., Mayo Clin., 24:181-197 (Apr. 13) 1949.
12. Ingle, D. J.: The effects of administering large amounts of cortin on the adrenal cortices of normal and hypophysectomized rats. Am. J. Physiol., 124:369-371 (Nov.) 1938.
13. Ingle, D. J.: Endocrine review. The biologic properties of cortisone: a review. J. Clin. Endocrinol., 10:1312-1354 (Oct.) 1950.
14. Ingle, D. J., and Kendall, E. C.: Atrophy of the adrenal cortex of the rat produced by the administration of large amounts of cortin. Science, 86:245 (Sept. 10) 1937.
15. Ingle, D. J., and Mason, H. L.: Subcutaneous administration of cortin compounds in solid form to the rat. Proc. Soc. Exper. Biol. & Med., 39:154-156 (Oct.) 1938.
16. Ingle, D. J.; Sheppard, R.; Evans, J. S., and Kuiezenga, M. H.: Comparison of adrenal steroid diabetes and pancreatic diabetes in rat. Endocrinology, 37:341-356 (Nov.) 1945.
17. King, E. Q.; Johnson, J. B.; Battin, G. S., and Henry, W. L.: Tuberculosis following cortisone therapy: report of a case of rapidly progressive pulmonary tuberculosis following cortisone therapy for rheumatoid arthritis. J.A.M.A., 147:238-241 (Sept. 15) 1951.
18. Kuzell, W. C., and Schaffarzick, R. W.: Cortisone acetate in thirty-two cases; preliminary clinical observations. Stanford M. Bull., 8:125-132 (Aug.) 1950.

(Continued on Page 649)

THE ABUSE AND MISUSE OF ANTIBIOTICS

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WE ARE LIVING in an age in which both physicians and the general public have come to expect miracles of medicine and surgery, leaving little to the powers of Mother Nature. Rare is the physician who has not been urged to prescribe all manner of antibiotics for patients with fever or other equivocal evidence of infection. The pace of living and of medical practice is such that all too often the first question is not "What is the cause?" but rather "Should I take sulfa or penicillin?"

There can be little doubt that a considerable part of this attitude is the result of the barrage of publicity concerning the new "wonder drugs" loosed upon the layman and physician by popular "science" writers and pharmaceutical companies. Many a physician is loath to treat a respiratory infection without giving antibiotics lest he be subject to criticism by misinformed relatives of the patient. However, it is not the purpose of this paper to explore the reasons behind this trend but rather to point out some of the effects.

Production and Cost of Antibiotics

As shown in Table I, the production of penicillin in the United States has increased astronomically in the ten years since its first use in human beings. The writer can remember the time when penicillin was so scarce and valuable that the urine of treated patients was saved and the penicillin therein extracted for other patients. Nine years ago penicillin sold for as much as $25.00 for a 10,000 unit ampule. At the moment one may purchase 500,000 units of a much more pure preparation for as little as $0.20. There has been a similar increase in production and decline in price of streptomycin since its introduction in 1945 (Table I). Production figures are not yet available for the "broad spectrum" antibiotics. There has been some reduction in their price, however.

TABLE I. PRODUCTION OF PENICILLIN AND STREPTOMYCIN IN THE UNITED STATES.*

	Year	*Quantity*
Penicillin	1942	Enough for 100 patients
	1949	8,000 billion U./mo.
	1950	22,000 " "
	1951	30,000 " "
	1952	40,000 " "
Streptomycin	1948	3,000,000 Gm./mo.
	1949	7,000,000 "
	1950	8,000,000 "
	1951	10,000,000 "

*Adapted from Welch and Lewis "Antibiotic Therapy."[4]

In Figure 1 are presented data indicating the monthly expenditure for four commonly used antibiotics in a 1000-bed general hospital during the past three years. One can see that during that period the total expenditure for antibiotics per month remained relatively stable. However, as new antibiotics came into frequent use, the amount of money expended for the other antibiotics declined. During this period the price of these antibiotics to this hospital remained quite constant. Therefore, the data give a fairly accurate idea of the changes in quantity of these antibiotics in use. They reflect the waxing and waning of enthusiasm of the physicians for new antibiotics.

Untoward Results of Antibiotic Therapy

Aside from the inconvenience, loss of time and unnecessary expenditure of money, the use of antibiotics without strict indications is objectionable from several other points of view. These objections have received publicity in medical journals, but are important enough to bear reemphasis.

1. *False Sense of Security.*—Antibiotics are often administered simply to bolster the confidence of the patient, his relatives and his physician. All too often they are given in the absence of a definite diagnosis and even in the place of indicated diagnostic procedures. Every clinical

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pathologist and bacteriologist is aware of the difficulty which antibiotic therapy imposes upon subsequent attempts to isolate the causative organism in an infection.

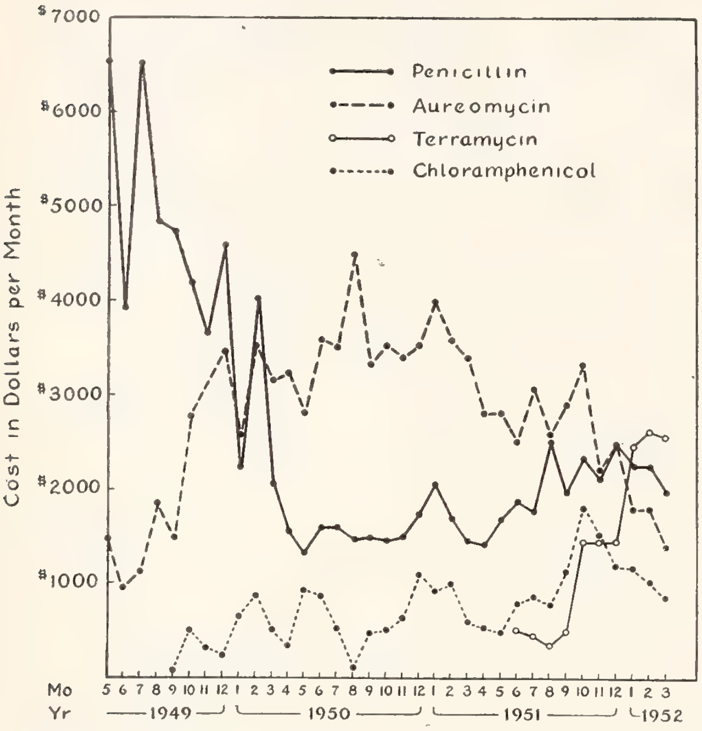

Fig. 1. Cost of antibiotics in a 1,000-bed general hospital.

The use of antibiotics may also give the false impression that everything is being done that can be done for an obscure illness. During the past year the author has had the opportunity to treat forty-four service men with vivax malaria contracted in Korea.[1] The first twenty-five patients were seen before there had been any publicity concerning the problem, either in the lay or medical press. Twenty per cent of this group had received penicillin prior to hospitalization. This was obviously largely due to the fact that the correct diagnosis had been made by the referring physician in only seven of the twenty-five patients and in none of those receiving penicillin. Smears of the peripheral blood eventually led to the correct diagnosis and treatment with effective antimalarial drugs.

2. *Development of Bacterial Resistance to Antibiotics.*—Widespread or indiscriminate use of antibiotics therapeutically, prophylactically or as food supplements may lead to a marked increase in tolerance of bacteria to those antibiotics. Presumably, the increase in antibiotic resistance results from the suppression of sensitive bacteria and selective proliferation of resistant variants arising by mutation. There can be no doubt that with such antibiotics as streptomycin the problem is a serious one. Coliform bacteria have been observed to undergo a 50,000-fold increase in resistance after only forty-eight hours of exposure to streptomycin. Similarly, many of the patients in tuberculosis sanitoria today harbor streptomycin-resistant tubercle bacilli. Time will tell whether the same phenomenon will be an important problem with isonicotinic acid hydrazide.

TABLE II. INCIDENCE OF RESISTANCE TO VARIOUS ANTIBIOTICS BY 155 STRAINS OF STAPHYLOCOCCI.

Antibiotic	*Per Cent Resistant**
Penicillin	54.8
Terramycin	27.1
Aureomycin	26.4
Streptomycin	20.6
Chloramphenicol	11.6
Bacitracin	7.1

*Resistance determined by paper disc-plate method.[2]
Antibiotic discs supplied by Difco Laboratories, Detroit, Michigan.

Antibiotic resistance has been a frequent problem in staphylococcic infections. Staphylococci seem peculiarly prone to develop resistant variants. There is evidence that staphylococci are becoming more frequently and more markedly resistant to penicillin year by year.[3] Recent studies in our own laboratory indicate that the incidence of resistance to a particular antibiotic correlates well with the amount of that antibiotic in use (Fig. 1 and Table II). The staphylococci used in the study summarized in Table II were all isolated from patients hospitalized at the Minneapolis Veterans Hospital during the period from July 1951 to April 1952. The 155 strains include all the staphylococci isolated regardless of source, coagulase reaction, pigment or hemolysin production. The sensitivity tests were all performed by the paper disc-plate method.[2] A sufficient number of strains have been tested for penicillin sensitivity using both the disc method and broth tube-dilution method to indicate that the disc method is reasonably accurate. It is generally agreed that the majority of strains of staphylococci are now resistant to penicillin; many are resistant to aureomycin, terramycin and streptomycin. All but a few are still sensitive to chloramphenicol and bacitracin.

3. *Side Effects and Hypersensitivity.*—Untoward side effects of antibiotics have received

considerable attention in the medical literature. Eighth nerve damage with streptomycin and neomycin and renal toxicity with bacitracin and polymyxin B are well-known entities. Urticaria and drug fever are commonly recorded manifestations of hypersensitivity to antibiotics. There are other less well-defined results of antibiotic therapy which may fall in this same sphere. They are illustrated by the two case reports which follow.

Case 1.—N.J.F., a white male truck driver, forty-three years old, was admitted to the hospital on February 20, 1950, for fusion of the left ankle. In 1944 he suffered a compound fracture of the lower end of the left tibia. This was followed by traumatic arthritis and recurrent phlebitis. In 1949 the left saphenous vein was ligated and stripped. At that time he was given procaine penicillin 300,000 units daily without reaction.

Physical examination revealed limited, painful motion of the left ankle. The skin of the ankle was discolored and edematous. On February 23, 1950, a left ankle fusion was done. Procaine penicillin (300,000 units daily) was given for one week prophylactically.

On March 17 he developed fever and pain in the ankle and by March 20 there was an obvious wound abscess. Aqueous penicillin G (150,000 units) was given intramuscularly every three hours for four doses on March 21. He was also given 250 mg. of aureomycin orally every four hours for three doses. The antibiotics were discontinued the following day because of fever, urticaria, severe crampy upper abdominal pain, nausea and vomiting. The abdomen was distended and roentgenograms revealed gas in the colon and small intestine. The leukocyte count was 23,400 with 84% neutrophiles and 2% eosinophiles. On March 24 he began to have diarrhea and passed several loose, bloody stools. Because of evidence of peritoneal irritation and his failure to improve with antihistaminic drugs and intestinal decompression by Miller-Abbott tube, a laparotomy was performed on March 27, 1950. There was more than 1000 cc. of clear yellow peritoneal fluid present. The jejunum and ileum were distended and edematous. Peyer's patches seemed enlarged and there was marked dilatation of the serosal blood vessels. Several ecchymoses were seen in the serosa. The mesenteric lymph nodes were only slightly enlarged. The colon appeared normal. The process was interpreted as an allergic enteritis.

The patient recovered quickly and was well by March 30. Benadryl was given during the postoperative period. On May 23, 1950, the ankle wound was incised and drained because of osteomyelitis. Aureomycin and chloramphenicol were given without event. Culture of the wound yielded penicillin-resistant staphylococci.

Comment.—This patient received procaine penicillin in 1949 and again late in Feb. 1950 without event. However, when given penicillin and aureomycin in March, 1950, he immediately developed drug fever, urticaria and an allergic enteritis with melena. Penicillin hypersensitivity seemed responsible since aureomycin was given later without reaction. Performance of antibiotic sensitivity tests upon a culture at the onset of the wound abscess would have prevented the therapeutic error.

Case 2.—D.A.P., twenty-two-year-old, male college student, was admitted to the hospital on Feb. 14, 1952. He had an upper respiratory infection beginning about Feb. 1, 1952. One week later he noted stiffness and swelling about the right temperomandibular joint. A physician denied that he had mumps and administered sodium salicylate. He continued to feel ill and had a fever. On Feb. 5 he took 300,000 units of penicillin and two tablets of a triple sulfonamide mixture every four hours. This was continued for three days without benefit. His right testicle then became swollen and tender. He was then given gantrisin and terramycin without improvement.

His past health had not been good. He was discharged from the Marine Corps in November, 1950, because of psychogenic gastrointestinal disturbances. He was immature and greatly dependent upon his mother. Aided by physicians and a friend employed as a detail man for a pharmaceutical firm, he became accustomed to the constant use of barbiturates. In addition, he used a variety of antibiotics in various forms with each of his frequent upper respiratory infections. He had suffered no side effects other than diarrhea attributed to aureomycin.

Physical examination showed a temperature of 99°F. and swelling, redness, tenderness and increased warmth of the right testicle. There were no other abnormalities.

Urinalysis revealed no pathologic changes. The hemoglobin was 16.6 Gm.% and leukocyte count 8,100 with 58% neutrophiles, 36% lymphocytes, 4% monocytes and 2% eosinophiles. The sedimentation rate was 13 mm. in 1 hour.

Chloramphenicol (500 mg.) was given orally every four hours and penicillin (200,000 units) every six hours. His temperature then rose to 101°F.; he complained of dyspnea with chest pain and began to cough up blood-streaked sputum. A chest roentgenogram showed bilateral hilar adenopathy. Bronchoscopy showed nothing other than a few flecks of blood. Smears of bronchial washings contained numerous yeast cells and mycelium; cultures yielded a non-pathogenic species of Candida (Monilia). Numerous sputum specimens showed the same yeast but no tubercle bacilli or other pathogens.

On the sixth hospital day, crepitant rales were heard at the base of the right lung and a roentgenogram showed an infiltrate in the right lower lobe and in the left upper lobe. On the ninth day a precordial gallop and a pleural friction rub at the right base were heard. The electrocardiograms revealed only nonspecific T wave changes. Penicillin and chloramphenicol were discontinued then since his fever, orchitis and hemoptysis continued unabated. His fever became septic, rising to 104° F. Because of increased fever and spreading pulmonary infiltrate, chloramphenicol (500 mg.) was given again every six hours from the tenth through the thirteenth hospital day. A weeping, erythematous dermatitis of the penis and scrotum then developed. This plus continued fever, hemoptysis and spread of the pneumonitis to the upper lobe of the right lung prompted withdrawal of all antibiotics.

Biopsy of the right testicle showed chronic nonspecific inflammation without demonstrable bacteria, yeasts or fungi; culture of the testis and of scrapings of the scrotum both contained a Candida nonpathogenic for a rabbit and without the biochemical activity or spores of *Candida albicans*. Skin tests for tuberculosis, histoplasmosis, coccidioidomycosis and blastomycosis were negative.

Within forty-eight hours after all antibiotics were discontinued, the patient became afebrile. The hemoptysis ceased and his orchitis subsided. Furthermore, physical and roentgenologic evidences of pulmonary consolidation slowly resolved. By April 11, 1952, the only demonstrable chest abnormality was "fibrosis" and moderate hilar adenopathy. At the height of his illness the leukocyte count rose to 25,300 with 75 per cent neutrophiles and a sedimentation rate of 37 mm. in one hour. During convalescence the leukocyte count and sedimentation rate returned to normal but as many as 8 per cent eosinophils were seen in the peripheral blood. The patient was discharged apparently well April 11.

Comment.—The pathogenesis of this patient's illness is not entirely clear. The most likely probability is that he had a viral respiratory infection at the onset. Treatment with multiple antibacterial agents then suppressed the susceptible bacterial flora and allowed Candida to proliferate in the bronchi. The orchitis may have been the result of drug hypersensitivity or dissemination of the Candida; pathologic proof of the latter was not obtained though culture of the testicle yielded Candida (contamination from the skin?). The occurrence of hilar adenopathy and pulmonary consolidation suggested the diagnosis of sarcoidosis. However, all but the hilar adenopathy and the pneumonitis rapidly regressed soon after the antibiotics were discontinued. The occurrence of eosinophilia during recovery supports the thesis that antibiotic hypersensitivity played an important role in his illness. Several investigators have shown that a change occurs in the flora of the mouth and gut during treatment with aureomycin, terramycin and chloramphenicol leading to a predominance of resistant yeasts, staphylococci and Pseudomonas. Perhaps similar changes may occur occasionally in the bronchi and lead to dissemination of these organisms elsewhere in the body. This thesis seems to fit well with the known facts in this case. There was no evidence of a deficiency of any known vitamin.

Summary and Conclusions

1. The astounding increase in production of antibiotics in this country in the last decade has led to a very desirable reduction in cost, but has also led to indiscriminant use by some people. This has had several undesirable effects.

2. One undesirable effect has been a false sense of security by reason of faith not justified by facts. This has led to use of antibiotics in some situations without good indications.

3. A serious hazard has been the rapid increase in prevalence of certain bacteria which are resistant to the antibiotics but are fully virulent.

4. Another important result has been the not infrequent conversion of a minor illness into a major disaster through the development of serious side effects, hypersensitivity states and alteration of the normal flora in the gastro-intestinal tract and elsewhere. The latter has been thought by some to lead to vitamin deficiencies but this remains unproved.

References

1. Hall, W. H., and Loomis, G. W.: Vivax malaria in veterans of the Korean war. New Eng. J. Med., 246:90-93 (Jan. 17) 1952.
2. Lind, H. E., and Swanton, E.: Routine bacteriologic sensitivity determinations in antibiotic treatment. Antibiotics & Chemotherapy, 2:30-34 (Jan.) 1952.
3. Spink, W. W.: Clinical and biologic significance of penicillin-resistant staphylococci, including observations with streptomycin, aureomycin, chloramphenicol and terramycin. J. Lab. & Clin. Med., 37:278, 1951.
4. Welch, Henry, and Lewis, C. N.: Antibiotic Therapy. 562 pages. Washington, D. C.: The Arundel Press.

SOMETHING TO LOOK FOR IF YOU VISIT WASHINGTON

Some stories are news merely because they haven't been mentioned for sixty or seventy years. For example, the fact that the American Medical Association has its own memorial stone in the Washington Monument. It is at the 240-foot level of the 555-foot shaft. This was brought to our attention by Dr. Burt L. Davis of Palo Alto, Calif., who noticed the carved facing while walking down the stairs with his son. It is old and dusty, as are the records in which we are searching for more information.

ABUSES OF A LOW SODIUM CONTENT DIET IN CARDIOVASCULAR DISEASE

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IN the past decade dietary restriction of sodium has been established as an adjunct to the therapeutic management of the cardiac patient who exhibits congestion. Schroeder pointed out that restriction of the intake of salt to a level less than the urinary output of chloride will decrease edema and that restriction of the intake of water alone is ineffectual.[14] As a consequence of use of diets low in sodium for congestive heart failure, adequate intake of water ordinarily can be permitted, and as a result of the alleviation of thirst and dehydration, the patient has been made more comfortable. Dietary restriction of salt also has made the task of obtaining and maintaining cardiac compensation easier and less time-consuming for the physician.

Use of diets low in sodium has been extended also to a place in the treatment of both essential and renal hypertension and in the management of fluid retention of nephritic, hepatic and hormonal origin.

The fact that this therapeutic tool can be applied by the patient himself as a part of his daily nutritional program makes it especially attractive to him. Many patients with cardiac and other diseases of organic or functional type are particularly receptive to the idea that the cause and cure of their malady are based on what they ingest.

Restriction of the intake of sodium and chloride for heart disease is a rational therapeutic measure only when the cardiac disease has progressed to the point of provoking renal mechanisms which cause retention of these electrolytes and water. Although controversial beliefs still exist, the concept is now widely accepted that edema in cardiac failure is caused by retention of salt and water secondary to the failure of the kidneys to excrete salt and water.

The fundamental initial physiologic disturbance in chronic congestive heart failure is the relative or absolute decrease in cardiac output. As a result of decreased cardiac output, there is a decrease in the renal plasma flow and in the rate of glomerular filtration.[11] According to Stead, tubular function in straightforward congestive failure remains good. As a result the reduced glomerular filtrate with its sodium chloride and water is more nearly completely reabsorbed than normally and thus is retained.[19] Undoubtedly hormonal and probably neurogenic influences are involved in this renal participation in the syndrome of congestive failure, but the actual mechanisms are not clear.

TABLE I. FORMS OF HEART DISEASE IN WHICH THE DIET OF LOW SODIUM CONTENT IS WITHOUT SPECIFIC INDICATION

- I. Irritable heart syndrome
  - A. Extrasystolic arrhythmias
  - B. Paroxysmal tachycardias
  - C. Neurocirculatory asthenia
- II. Valvular heart disease without congestive failure
  - A. Rheumatic
  - B. Syphilitic
  - C. Subacute bacterial endocarditis
- III. Acute rheumatic fever without failure
- IV. Coronary atherosclerosis with angina pectoris and without myocardial failure
- V. Acute myocardial infarction without congestive failure
- VI. Congenital cardiovascular anomalies without congestive failure
  - A. Cyanotic type
  - B. Acyanotic type

Heart Disease Without Congestive Failure

For heart disease which is not associated with sufficient failure to produce renal retention of salt and water, the diet low in sodium has no value. Not only is this diet unnecessary but it may be detrimental to the patient from the psychologic, nutritive, economic and occasionally the health standpoints. The prescription of a diet low in sodium for patients because of the therapeutic philosophy that if no good results, at least no harm has been done, is to be deplored. Restriction of the intake of salt for cardiac murmurs, thoracic pain, dyspnea of intrinsic pulmonary origin or edema due to peripheral venous or lymphatic disease in the absence of cardiac decompensation cannot be justified.

Examples of cardiac disturbance both functional and organic in which dietary restriction of salt has been needlessly utilized are listed in Table I.

In all these types of cardiac problems the low sodium diet will have no effect on the pathologic

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process responsible for the symptoms and signs. Unnecessary dietary restrictions may interfere with appetite and cause unassessable nutritional impairment particularly for the patient who is recovering from rheumatic fever or acute myocardial infarction.

Psychologic factors in the management of cardiac patients have assumed an important place in this era of newspaper and radio health propaganda. Restriction of sodium when unnecessary serves to emphasize constantly to the patient his malady and to superimpose anxiety and heart consciousness which may even be detrimental to his cardiac status as well as making him genuinely uncomfortable. Diets poor in sodium necessitate the purchase of some special food products and also individualized preparation of food. This imposes an economic factor of significant proportion particularly on the needy. Depletion of sodium and chloride induced by dietary restriction of salt alone is rarely seen, but may be a real hazard when combined with administration of ionic exchange resins and mercurial diuretics, particularly when renal disease is associated. This phase of the abuse of the low sodium diet will be discussed more fully later.

Congestive Failure

In the presence of congestive heart failure of any type the low sodium diet can be abused in a quantitative way. Not all patients with congestive heart failure have disease of equal severity and consequently not all will require similarly rigid dietary management.[8]

In clinical practice low sodium diets which provide approximately 0.2 gm., 0.5 gm. and 2 gm. of sodium a day are in common usage. The diet providing 0.2 gm. of sodium a day is rarely indicated even for the most severe congestive failure. Frequently for the patient who has moderately severe congestive heart failure a diet providing 0.5 gm. of sodium can be replaced by the diet providing 2.0 gm. of sodium after compensation has been restored. When aggravating factors which have contributed to a break in cardiac compensation such as obesity, hyperthyroidism, strenuous occupation and inflammatory diseases have been removed, cardiac function may be restored sufficiently to make other than mild dietary restriction of sodium unnecessary. It is doubtful, however, whether an entirely free dietary regimen should ever be permitted the patient with organic heart disease who has once had frank congestive failure with cardiac edema.

Hypertension

Current application of the low salt diet to the management of hypertensive vascular disease was stimulated by Kempner's successes with the rice diet.[7] Grollman and associates demonstrated that rigid restriction of sodium in a more liberal diet also was associated with reduction in the blood pressure of hypertensive rats and human beings.[4] This latter observation suggested that the efficacy of the rice diet lay in its low content of sodium. Later studies have indicated that the renal hemodynamics of hypertensive patients may be somewhat impaired during treatment with the low sodium and rice diets.[1,21]

Recently, Corcoran, Taylor and Page carefully studied a series of patients and found that marked dietary restriction of sodium produced favorable effects on only approximately a fourth of the patients with severe hypertension.[3] Their studies indicated that for the diet to be of value in the treatment of hypertension the intake of sodium must be restricted to 0.5 gm. or less daily and that this dietary regimen cannot be accepted as responsible for results obtained unless the urinary excretion of sodium is determined frequently. These authors also reported that treatment with restriction of sodium should be maintained four weeks to test the responsiveness of the patient to this form of therapy. Failure to see good results after this period is an indication that the restriction is probably useless and should be discontinued.

Abuse of the low sodium diet for hypertension has manifested itself in several ways:

1. The mere advice to the patient to "go easy on the salt" is a worthless measure since restriction of intake of sodium to any extent that is less than that rigidly imposed by the diets providing 0.2 gm. or 0.5 gm. of sodium or the rice diet is therapeutically ineffective.
2. Restriction of salt sometimes is continued for months or years in the absence of clear-cut satisfactory objective responsiveness and such continuation is not justifiable.
3. Use of the diet for the hypertensive patient with diminished renal functional capacity may be an abuse because of the danger of depletion of plasma electrolytes and derangement of the salt and water mechanism.

4. Probably the most frequent abuse occurs when sodium restriction is advised for the middle aged or older patient with nonprogressive essential hypertension of long standing. This type of patient often has an exacting and conscientious personality pattern and dietary restriction of salt which offers probably negligible benefit adds to a self-imposed discipline and creates anxiety and tension which are further stimuli to hypertension.

The Syndrome of Salt Depletion

In addition to the relative abuses in the utilization of the diet of low sodium content which have been mentioned, a hazard of this regimen is the occasional occurrence of electrolyte depletion. The "low salt syndrome" has been found to occur when rigid restriction of salt alone is instituted, and also when ion exchange resin is used, particularly if there is significant renal deficiency.[9,10] Mercurial diuretics, when they have been administered frequently to the patient with congestive failure who is using a diet low in salt, however, have been held responsible most often for the electrolyte derangement in this syndrome.[2,6,17] Symptoms attributable to depletion of sodium and chloride also have been reported in cases of cirrhosis of the liver in which treatment included deprivation of salt and abdominal paracentesis.[5,13]

Schroeder[15] described this clinical syndrome in congestive failure. There is depression of the volume of urinary output and of urinary chloride associated with gain in weight, elevation of the concentration of nonprotein nitrogen in the blood and depression of the levels of plasma sodium and chloride. Coincident with these changes in water and electrolytes the patient becomes apathetic and lethargic and complains of anorexia, weakness and often of muscular cramps. The worsening of his general condition and retention of fluid are likely to encourage the physician to increase his efforts to produce diuresis and thereby further disarrange the plasma and renal electrolyte pattern.

Usually, the low salt syndrome develops after the patient with severe congestive heart failure of long standing has used a low salt diet, has further decreased the intake of sodium because of anorexia, and has been receiving frequent injections of mercurial diuretics. Such a patient has lost an excessive amount of chloride ion in the urine whereas the loss of sodium is not so great. This leads to a reduced concentration of chloride and an increase in plasma bicarbonate, that is, the laboratory picture of hypochloremic alkalosis.[16,18,20] At this point further mercurial diuretics are ineffective except to eliminate both chloride and sodium and thus also produce hyponatremia. The patient will present symptoms of the low salt syndrome described before. Continued rigid dietary restriction of sodium and chloride and their diuresis, as a result of administration of mercurials may lead to frank psychosis, coma and death.[2]

The treatment of choice for this situation is the restoration of the electrolytes to a more nearly normal state. Elevation of plasma sodium and chloride by their parenteral or oral administration will sometimes be associated with subjective improvement and responsiveness to mercurial diuretics.[2,15,20] Undoubtedly many patients who have been classified as having intractable and terminal irreversible congestive heart failure because of failure to respond to restriction of sodium and administration of mercurials actually have electrolyte depletion. Although in most such instances the severity of the cardiac disability militates against further compensation, some patients will respond again to well-conceived therapy. When hypochloremia is extreme in the absence of significant hyponatremia, use of ammonium chloride will correct the low level of serum chloride and will reduce the alkalosis.[16,20] Combined hyponatremia and hypochloremia require use of sodium chloride: either by intravenous injection of a hypertonic (3 to 5 per cent) solution or by mouth in the form of salt tablets. The proper amount of salt to administer may be determined by calculating the deficit in terms of milliequivalents and converting this amount into grams for replacement.[15] Oral intake of fluids should be restricted during therapy with hypertonic solution of salt in order to avoid any extracellular dilution. Infusion of isotonic solution of sodium chloride also cannot be expected to alter hyponatremia and hypochloremia significantly unless large amounts are given which may be hazardous for the patient with congestive failure.[15,20]

Certainly the low sodium diet is again an indicated and necessary measure for the patient who has severe congestive heart failure with peripheral edema after electrolyte equilibrium has been accomplished. Caution in the use of mercurial diuretics and frequent estimations to avoid retention of urea are essential in further management to avoid further plasma depletion of sodium and chloride.

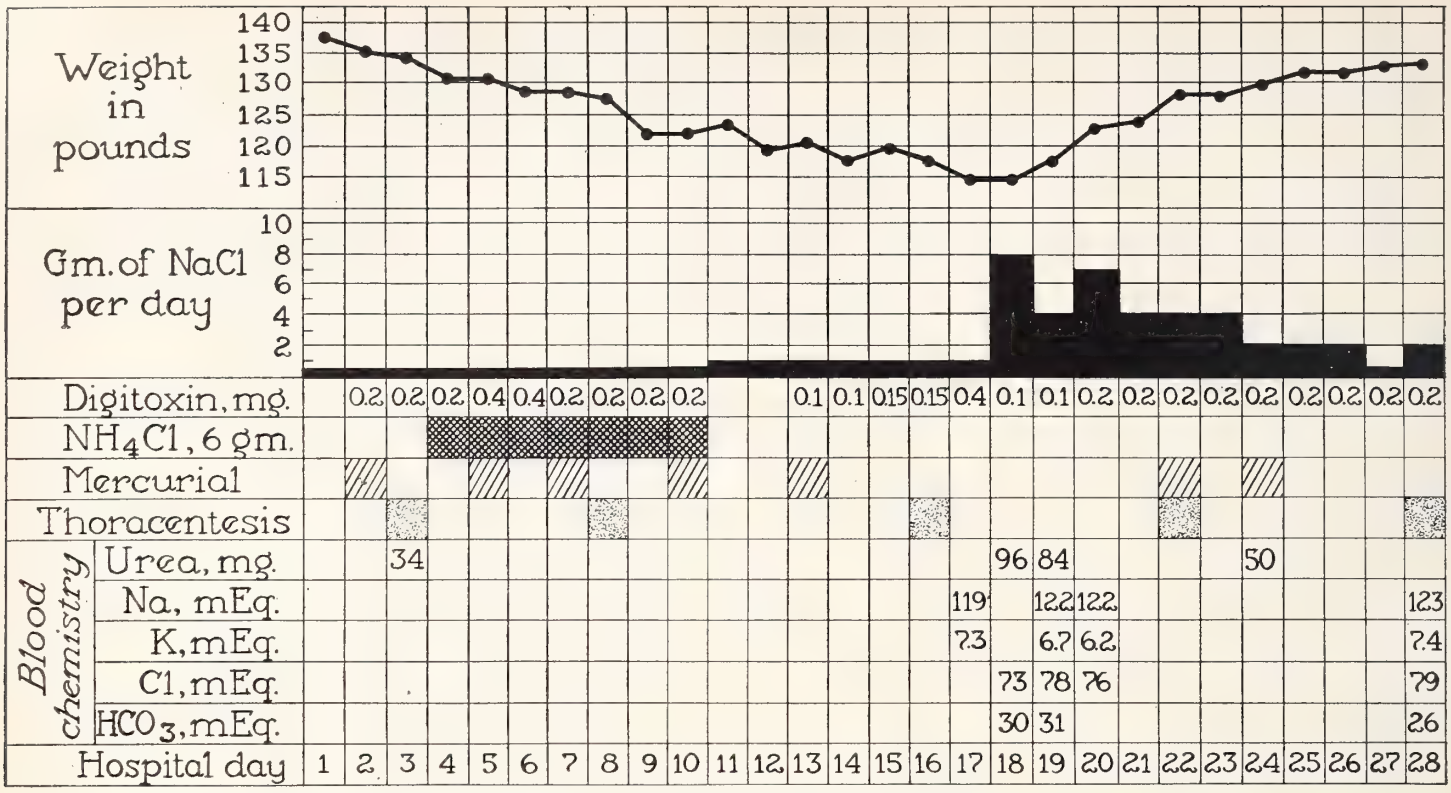

Fig. 1. Clinical and laboratory observations made in the case of a man forty-four years old, with mitral stenosis, who exhibited the low salt syndrome during his terminal illness.

Case 1 is an example of severe congestive cardiac failure and the low salt syndrome developing terminally.

Case 1.—A man, forty-four years old, was admitted to the hospital on March 3, 1951. He had known since 1940 that he had a heart murmur. Between the years of 1947 and 1950 he had five or six episodes which consisted of temperature to 103° or 104° F., chills and recurrent pleural effusion on the left side. During these years dyspnea became progressively more marked, and in October, 1950, edema appeared and albuminuria was noted.

On examination the patient presented the clinical picture of severe congestive heart failure. He was orthopneic and had distended veins of the neck, hepatomegaly, and marked peripheral and sacral edema. Apical systolic and diastolic murmurs were heard and cardiac enlargement was observed. Roentgenograms of the thorax showed a large heart of mitral configuration and bilateral pleural effusions. The electrocardiographic picture was consistent with the pattern of right ventricular hypertrophy. Albuminuria was graded 3 (on the basis of 1 to 4) and a few hyaline and granular casts were found in the voided urine.

The patient's course in the hospital was marked by severe dyspnea, orthopnea and evidence of fluid retention. Thoracentesis was necessary frequently. He complained of marked weakness, anorexia and drowsiness. Response to mercurial diuretics was poor.

Nausea, weakness and apathy were dramatically although temporarily improved on the eighteenth and nineteenth days in the hospital when extra sodium chloride was administered in the form of salt tablets and by intravenous infusions. This treatment, however, was associated with marked increase in retention of fluid and signs and symptoms secondary to increasing congestive failure. The patient died on the twenty-ninth day in the hospital. Necropsy confirmed the clinical diagnosis of severe mitral stenosis. Clinical and laboratory data collected during his hospital course are recorded in Figure 1.

This patient was treated vigorously with poor results for more than two weeks before the diagnosis of electrolyte depletion and associated azotemia was made. From an initial value of 34 mg. per 100 cc. of blood, the value for blood urea rose to 96 mg. at the time when serum sodium and plasma chloride were respectively 119 and 73.3 mEq. per liter. Mild hyperkalemia and increase in the carbon dioxide combining power (alkalosis) also were evident. Following therapy with sodium chloride these electrolyte values tended toward normal as noted in Figure 1. The cardiac lesion, however, was too severe to permit survival or even to allow restoration of plasma electrolytes to normal.

Restriction of Sodium in Chronic Cor Pulmonale

In chronic cor pulmonale, right heart failure with cardiac edema is associated with respiratory acidosis secondary to pulmonary insufficiency. As a result of deficient ventilation carbon dioxide is retained and the concentration of bicarbonate in the plasma is elevated. To compensate for retention of carbon dioxide in the blood, fixed base in the form of sodium ion must also be retained in the extracellular fluid.

TABLE II. PATIENT WITH COR PULMONALE

	Day in Hospital											
	1	2	3	4	5	6	7	8	9	10*	11*	12*
NaCl intake, gm.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5.0	0.5	0.5
Digitoxin, mg.			0.2	0.2	0.2	0.2	0.2	0.2	0.2			
Mercurial, cc.						1		1				
Phlebotomy, cc.									300			300
Urine, cc.			200	300	320	300		400	500	180	200	450
Urea, mg.		56										
Na^+, mEq.		140								138		
K^+, mEq.		5.8								5.9		
Cl^-, mEq.		94.3								85.7	86.8	
HCO_2, mEq.		37								27	38	
Blood pH		7.25								7.08	7.28	

*Clinical state:
Tenth day: collapse; critical condition.
Eleventh day: more alert and responsive.
Twelfth day: increasing edema.
Thirteenth day: died.

On theoretical grounds use of the low sodium diet particularly when combined with diuresis of sodium as a result of administration of mercurial diuretics may be a factor in upsetting the compensated respiratory acidosis. A few cases in which electrolyte disturbances were apparently disturbed by dietary restriction of salt and administration of mercurials have been encountered at the Mayo Clinic and undoubtedly other observers also have seen this syndrome.[12]

In Case 2 depletion of sodium was associated with severe symptoms.

*Case 2.**—This patient, a woman sixty-six years old, who had had severe kyphoscoliosis since childhood, was first admitted to the hospital in December, 1949, because of congestive heart failure associated with cyanosis. Her response was satisfactory to a program of digitalization, rest and a diet poor in salt. A second admission to the hospital was necessitated in June, 1950, when she had a severe respiratory infection. During that hospitalization an acute psychotic episode occurred which in retrospect was attributed in part to "oxygen poisoning." This paradoxical reaction occasionally develops when patients with severe pulmonary insufficiency are given oxygen in high concentrations.

The final admission of the patient on November 16, 1950, was precipitated by increasing dyspnea and cyanosis. Examination revealed severe respiratory difficulty, marked cyanosis, accentuated pulmonic second sound but no edema. She had 16.0 gm. of hemoglobin per 100 cc. of blood and 5,500,000 erythrocytes per cubic millimeter. Urinalysis disclosed nothing abnormal.

Significant electrocardiographic abnormalities were right axis deviation and inverted T waves in leads II and III. Her course was marked by continued cyanosis and dyspnea with weakness. She received only 0.5 gm. of sodium in her food although less was ingested because of anorexia. Mercurial diuretics were injected on the sixth and eighth days in the hospital. On the ninth and tenth days her condition became critical in that she was more dyspneic, stuporous and showed peripheral vascular collapse with hypotension and cold clammy skin. This phase was found to be associated with uncompensated respiratory acidosis (blood pH 7.08). The response to the intravenous administration of 500 cc. of normal saline solution was dramatic. She became alert and the blood pressure returned to normal.

Three days later the patient died as a result of increasing anoxia and congestive failure. Brief data concerning this patient's course are presented in Table II.

It would appear that renal conservation of sodium is necessary to compensate for the retention of bicarbonate in at least some cases of chronic cor pulmonale and that severe dietary restriction of sodium or diuresis may so deplete the body of necessary sodium that pH of the blood is lowered to dangerous and even fatal levels. This patient had responded previously in a satisfactory manner to moderate dietary restriction of salt in so far as the edema was concerned. In her terminal illness further depletion led to plasma acid-base imbalance, as recorded in Table II.

Rigid dietary restriction of sodium for chronic cor pulmonale particularly in the absence of marked edema may represent another little recognized abuse of this therapy. The management of the patient with pulmonary insufficiency and congestive heart failure is indeed difficult. Permitting a free diet leads to retention of fluid and more severe heart failure while withholding sodium and the use of mercurials may disrupt the electrolyte pattern which remains compensated only with difficulty. With present methods the physician must feel his way along a middle pathway which may not be satisfactory in all cases.

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*This case is to be presented in greater detail as part of a paper being prepared by Dr. Myers.[12]

Summary

The diet low in sodium, although an extremely useful measure in the treatment of cardiovascular disorders, requires rational usage. It has no purpose in the treatment of heart disease unless there is evidence that cardiac output is reduced absolutely or relatively to the point at which renal mechanisms cause retention of salt and water and the syndrome of congestive heart failure is manifest. The insistence that patients with functional cardiac disturbances and with organic cardiac ailments who have never had a decompensation follow a low sodium diet is unwarranted and may be of nutritional, psychologic and economic detriment. The degree of restriction of sodium and chloride should be graduated for the patient depending on the severity of his congestive failure. When reversible cardiac loads have been removed, restriction of salt may be lessened accordingly.

Although hypertension may occasionally respond to a low sodium diet, its use is frequently abused by its being continued indefinitely for unresponsive patients, particularly when the degree of restriction is therapeutically inadequate.

A hazard of salt restriction especially when mercurial diuretics are frequently administered is the depletion of plasma electrolytes characterized clinically by what is known as "the low salt syndrome." Although this clinical state usually occurs in the terminal phase of congestive failure, it is sufficiently often reversible by restoration of plasma electrolytes to be considered in every patient whose condition deteriorates while being treated with a diet low in sodium. A return of the patient's responsiveness to mercurial diuretics at times may be produced by prompt therapy with hypertonic saline solution and sometimes with ammonium chloride.

Rigid dietary restriction of sodium and diuresis of sodium can disturb the compensated respiratory acidosis of chronic cor pulmonale and produce dangerous depression of pH of the blood.

References

1. Chasis, Herbert; Goldring, William; Breed, E. S.; Schreiner, G. E., and Bolomey, A. A.: Salt and protein restriction; effects on blood pressure and renal hemodynamics in hypertensive patients. J.A.M.A., 142:711-715 (Mar. 11) 1950.
2. Citron, David; Bercu, Bernard; Lemmer, Richard, and Massie, Edward: Congestive heart failure and hyponatremia: untoward effects of mercurial diuresis. Ann. Int. Med., 34:872-880 (Apr.) 1951.
3. Corcoran, A. C.; Taylor, R. D., and Page, I. H.: Controlled observations on the effect of low sodium dietotherapy in essential hypertension. Circulation, 3:1-16 (Jan.) 1951.
4. Grollman, Arthur; Harrison, T. R.; Mason, M. F.; Baxter, James; Crampton, Joseph, and Reichsman, Francis: Sodium restriction in the diet for hypertension. J.A.M.A., 129:533-537 (Oct. 20) 1945.
5. Holley, H. L., and McLester, J. S.: Salt depletion syndrome associated with decompensated cirrhosis of the liver. J.A.M.A., 145:392-393 (Feb. 10) 1951.
6. Jaffe, H. L.; Master, A. M., and Dorrance, William: The salt depletion syndrome following mercurial diuresis in elderly persons. Am. J. M. Sc., 220:60-65 (July) 1950.
7. Kempner, Walter: Treatment of hypertensive vascular disease with rice diet. Am. J. Med., 4:545-577 (Apr.) 1948.
8. Levy, R. L.: Needless restrictions imposed on cardiac patients. Circulation, 5:454-461 (Mar.) 1952.
9. MacGuire, W. B., Jr.: Risk of uremia due to sodium depletion. J.A.M.A., 137:1377-1378 (Aug. 14) 1948.
10. Marty, B. L.; Kohlstaedt, K. G., and Helmer, O. M.: Use of a combination of anion and cation exchange resins in the treatment of edema and ascites. Circulation, 5:524-533 (Apr.) 1952.
11. Merrill, A. J.: Mechanisms of salt and water retention in heart failure. Am. J. Med., 6:357-367 (Mar.) 1949.
12. Myers, W. P. L.: Respiratory acidosis and its bearing on the renal regulation of acid-base balance. (Unpublished data.)
13. Nelson, W. P., III; Rosenbaum, J. D., and Strauss, M. B.: Hyponatremia in hepatic cirrhosis following paracentesis. J. Clin. Investigation, 30:738-744 (July) 1951.
14. Schroeder, H. A.: Studies on congestive heart failure. I. The importance of restriction of salt as compared to water. Am. Heart J., 22:141-153 (Aug.) 1941.
15. Schroeder, H. A.: Renal failure associated with low extracellular sodium chloride; the low salt syndrome. J.A.M.A., 141:117-123 (Sept. 10) 1949.
16. Schwartz, W. B., and Wallace, W. M.: Observations on electrolyte balance during mercurial diuresis in congestive heart failure. J. Clin. Investigation, 29:844 (June) 1950.
17. Soloff, L. A., and Zatuchni, Jacob.: Syndrome of salt depletion; induced by a regimen of sodium restriction and sodium diuresis. J.A.M.A., 139:1136-1139 (Apr. 23) 1949.
18. Squires, R. D.; Singer, R. B.; Moffitt, G. R., Jr., and Elkinton, J. R.: The distribution of body fluids in congestive heart failure. II. Abnormalities in serum electrolyte concentration and in acid-base equilibrium. Circulation, 4:697-705 (Nov.) 1951.
19. Stead, E. A., Jr.: Renal factor in congestive heart failure. Circulation, 3:294-299 (Feb.) 1951.
20. Stock, R. J.; Mudge, G. H., and Nurnberg, Miriam J.: Congestive heart failure; variations in electrolyte metabolism with salt restriction and mercurial diuretics. Circulation, 4:54-69 (July) 1951.
21. Weston, R. E.; Hellman, L.; Escher, D. J. W.; Edelman, I. S.; Grossman, J., and Leiter, L.: Studies on the influence of the low sodium cardiac diet and the Kempner regimen on renal hemodynamics and electrolyte excretion in hypertensive subjects. J. Clin. Investigation, 29:639-650 (June) 1950.

THE USE OF METHANTHELINE BROMIDE (BANTHINE) IN PEPTIC ULCER AND OTHER GASTROINTESTINAL DISORDERS

With Special Reference to its Abuses

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EVER SINCE the enthusiastic reports of Grimson and his co-workers,[3,4] Banthine has come to be widely used, especially in the treatment of peptic ulcer and many reports of its efficacy have appeared in the literature. In his original trials of the drug, in order to more clearly note its effect, Grimson used no other adjuncts such as diet, antacids, et cetera, in his treatment of peptic ulcer. While this procedure was justifiable and necessary in order to evaluate a new drug properly, it has had the unfortunate effect, in some circles, of creating the impression that prescribing Banthine is all that is necessary in the treatment of peptic ulcer. This conclusion was never intended by Grimson and his co-workers and subsequent studies have served to emphasize the fact that Banthine should be considered only as an adjunct to other fundamental methods of therapy.[1,2,6,7,8]

In order to understand the proper place of Banthine in present-day gastroenterological therapeutics, it is necessary to review, briefly, the information which has accumulated in regard to the effects of this drug on the gastro-intestinal tract. All are agreed that the fundamental effect of Banthine is to inhibit the acetyl-choline liberated at the post-ganglionic parasympathetic nerve endings, thereby blocking vagal impulses. In larger doses it blocks the transmission of impulses through autonomic ganglia as well. In the usual therapeutic doses, therefore, Banthine has an atropine-like action. The remarkable features of the Banthine effect are that the wanted atropine-like action on gastrointestinal motility and secretion is dominant, while the unwanted atropine-like actions such as tachycardia, flushing, cerebral stimulation and mydriasis are minimal, or absent. These are the features that make Banthine a more useful drug than atropine in gastroenterology.

McHardy et al[6] measured salivary secretion before and after Banthine and found a marked inhibition in 86 per cent of cases. In most, this lasted only about seventy-two hours. They found no effect on esophageal secretion. Cardiospasm was accentuated by Banthine; in fact, radiologically demonstrable cardiospasm was present in 18 per cent of 200 patients with duodenal ulcer on Banthine therapy as compared with only 3 per cent before Banthine was started.

All authors are agreed on the profound effect of Banthine on gastric motility. Balloon-kymograph, x-ray and gastroscopic studies have demonstrated the ineffective peristalsis, delayed emptying, and atony of the gastric wall. Most writers refer also to the diminution in the volume of gastric secretion following Banthine. McHardy et al[6] and Winklestein[8] dispute this. The decrease in titratable free hydrochloric acid in the gastric secretion following Banthine apparently has not been as uniformly demonstrated as the decrease in volume. In addition to its effect on gastric motility and volume of secretion, Wolf et al[1] have demonstrated a definite decrease in congestion and turgor and a thinning of the gastric rugae following Banthine.

All are agreed that Banthine accentuates pyloric obstruction and should not be used when this is present. If the obstruction is transient and due to spasm or edema, it should not be used until the obstruction has been relieved by other means.

Pancreatic secretion as measured in pancreatic fistulae has been shown to be definitely decreased by Banthine,[6] and there appears to be a definitely beneficial effect on acute pancreatitis and chronic recurring pancreatitis with calculosis, although we cannot by any means speak as yet of any cures. Biliary drainage has been shown by these same authors to be increased. Drainage from ileostomies as well as from colostomies at various levels are quite uniformly decreased.

Almy et al[5] state that Banthine inhibits the motility of all portions of the resting gastrointestinal tract. With the balloon-kymograph they have shown that 100 mgm. orally prevents the hypermotility of the sigmoid which usually follows the ingestion of foods and the subcutaneous administration of urecholine and morphine sulphate, but it only partially suppresses the sigmoid hyper-

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motility accompanying emotional tension during a disturbing interview. These authors as well as McHardy et al[6] speak of its clinical usefulness in some forms of hyperperistaltic diarrhea and in relief of intestinal pain. Spastic constipation, however, is not affected. The latter authors call attention to its lack of effect in various obstructive types of diarrhea and in chronic ulcerative colitis.

In addition to these actions which, in general, can be considered to have some clinical usefulness, there are side-effects which may at times make the use of Banthine uncomfortable for the patient or constitute definite contraindications to its use. The absolute contraindications can be stated as being: (1) bladder neck obstruction; (2) coronary insufficiency and cardiac decompensation; (3) glaucoma; (4) achalasia or cardiospasm; (5) pyloric obstruction, and (6) adynamic ileus. Bladder retention is usually thought of as occurring only in older men with enlarged prostates. It, however, has also occurred in women, probably due entirely to the induced atonicity of the bladder wall. Whether or not an undiscovered cicatricial urethritis could be a factor is difficult to say. Other side-effects such as visual disturbances, dryness of the mouth, and constipation are usually transient or so minor that they need not be given serious consideration. Very occasionally they may be distressing enough to the patient to warrant either decreasing the dose or discontinuing the drug entirely. On one occasion very severe dysphagia and pain along the esophagus developed which did not disappear until about five days after the discontinuance of the drug. Banthine should not be used in the immediate preoperative period as it will almost invariably lead to postoperative bladder retention.

It can now be stated that Banthine has been shown to be the most potent and useful antispasmodic agent yet developed. With special reference to its use in *duodenal* ulcer, most writers are agreed that it constitutes a valuable addition to our armamentarium if used together with other accepted methods of therapy. McHardy and his group[6] are the only writers I have encountered who state that their percentage of good results has been no greater with Banthine than without. Others agree that even in the so-called intractable cases, provided pyloric obstruction is not present, the addition of Banthine results in symptomatic relief and disappearance of the crater in the vast majority. It is still too early to say how permanent these results will be. Recurrences of ulcers while on therapy have been reported. In some of these, treatment has been inadequate. In general, the results are still on the positive side.

The results of therapy with Banthine in *gastric* ulcer have not been so convincing. A few patients seem to respond well, but, from all reports, the majority are very little if at all benefited. Excellent relief has been reported in a few cases of hyperacidity syndrome, marginal ulcers and peptic ulcers in hiatus hernia.[2]

The misuse and/or abuse of Banthine can probably be grouped under four main headings:

1. *Expecting the drug to accomplish more than our present experimental data would warrant.* Under this heading is included the tendency simply to hand the patient a prescription for Banthine and expecting thereby a cure for his ulcer. It must be remembered that, according to our present knowledge, the effect of Banthine on the course of duodenal ulcer perhaps is brought about entirely by its profound effect in suppressing gastric motility and its moderate effect in decreasing the volume of gastric secretion. It still behooves us to see that the patient obtains the needed rest, that his life be regulated so as to avoid tension and strife as far as possible, and that proper diet and, in certain cases, at least, antacids be administered so as to provide a medium which is conducive to the healing of the ulcer.

2. *Improper use of the drug.* It must be remembered that the effect of one dose of Banthine does not last longer than four to six hours, so that the drug must be administered at least every six hours throughout the twenty-four hour period, and especially at night when there is nothing in the stomach to buffer the effect of the acid peptic juice on the ulcer. This must be continued until there is evidence of complete healing of the ulcer. In other words, one tablet two or three times daily is not adequate. Complete therapeutic trial cannot be said to have been carried out until 100 mgm. (2 tablets) have been given every six hours. In some cases this may have to be increased to every four hours. Wolf states that during periods of stress it may be necessary to increase the dose temporarily. The prescribing of Banthine to be taken only as pain comes on cannot be condoned.

(Continued on Page 668)

BLOOD GROUP FACTORS

Part II. Rh Sensitization

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THE discovery of the Rh-Hr system of blood groups and the recognition of sensitization to these factors have constituted one of the important medical contributions of the past decade.

The general principles of intra-group sensitization were correctly elucidated by the early workers on Rh,[10,11,12,18] and in the intervening years these principles have been changed very little. Individuals who lack certain blood group antigents, if inoculated with them, may react to these substances as though they were foreign proteins. The initial exposure of the individual to the foreign blood factor produces no reaction but may stimulate the formation of antibodies. Once the antibodies have been produced, subsequent introduction into the blood stream of the specific blood antigen will produce untoward antigen-antibody reactions. Exposure of the body to foreign blood group antigens can be accomplished in either of two ways: (1) by the introduction of incompatible blood, either as transfusions or as subcutaneous, intramuscular or intraperitoneal injections, or (2) by pregnancy, in which foreign blood group antigens from the fetus are introduced into the mother by way of the placenta. First we shall consider sensitization produced by repeated transfusion.

Repeated Blood Transfusions

If repeated transfusions of Rh-positive blood are given to an rh-negative recipient, that person is likely, sooner or later, to produce Rh antibodies. This antibody producing response of rh-negative persons to the Rh antigen shows considerable individual variation. Following such repeated transfusions, about 50 per cent or more of the recipients develop some degree of demonstrable sensitization,[4,12] whereas a small proportion fail to show any sensitization even after several transfusions. Inoculations of volunteers for the purpose of developing anti-sera is successful to some degree in the great majority of cases.[19] It seems clear that sensitization is very frequent after transfusion of Rh-positive D (Rh_0) blood to an rh-negative d (Hr_0) recipient. It can be concluded from this that every precaution must be taken to avoid the transfusion or injection of Rh-incompatible blood.

Sensitization Due to Pregnancy

On the other hand, sensitization of rh-negative (cde) mothers by an Rh-positive fetus is relatively uncommon.[2,17] In one series of antibody studies[8] on almost 4,000 rh-negative women with Rh-positive husbands, the incidence of sensitization was 1 in 19. Even making appropriate allowance for pregnancies yielding rh-negative children and for first pregnancies (it generally requires at least one pregnancy to sensitize a mother), the estimated incidence of sensitization in this study still was not over 1 in 10. These observations suggest the moral obligation of everyone teaching the principles of Rh sensitization to point out (1) that transfusion or injection of Rh-incompatible blood results in a high frequency of sensitization, and (2) that pregnancy in rh-negative women produces sensitization on the average in only about 1 in 20 women.

This ratio does not apply, however, to rh-negative women who have received previous transfusions or injections of Rh-positive blood. Because of the high incidence of sensitization following such transfusions, these women may already be sensitized to the Rh antigen at the time of their first pregnancy. Before we had knowedge of the Rh factors, transfusions with incompatible Rh blood were unfortunately not uncommon. It is now well known that rh-negative women who have previously received a transfusion of Rh-positive blood are more than likely to produce affected babies in future pregnancies.[5,13] Women who might have given birth to several normal children may have all their chances of future normal childbearing destroyed by a transfusion or even an intramuscular injection of Rh-incompatible blood.[1] Intramuscular injection of unmatched blood into infants should be discontinued.

Rh-Hr Factors

As discussed in Part I of this review, the Rh-Hr system consists of three factors. The Brit-

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TABLE I. COMMON GENOTYPES AND THEIR PERCENTAGE DISTRIBUTION AMONG AMERICAN WHITES.

Genotype	Percentage (Approximately)
CDe/cde	32
CDe/CDe	17
cde/cde	15
CDe/cDE	14
cDE/cde	12
cDe/cde	2
cDE/cDE	2
CwDe/CDe	1
All others less than 1% each and less than 5% total.	

ish CDE system of nomenclature enables physicians to better visualize the relationship of the three Rh genes and their family of variants or allelomorphs. In order to understand the somewhat complex Rh-Hr nomenclature, it is essential for the physician to fix in his mind that the Rh "positive" element is expressed in the British nomenclature by the capital letter, e.g., C (rh′) D (Rh$_o$) and E (rh″), whereas the rh "negative" or Hr element is expressed by the corresponding small letter, e.g., c (hr′), d (Hr$_o$) and e (hr″). He should have available in his library or office desk the table of frequencies for at least the most common of the different Rh patterns (genotypes) (Table I).

Sensitization to Rh-Hr

The most commonly occuring Rh sensitization is in d (Hr$_o$) women exposed to D (Rh$_o$) antigen. From Table I it can be seen that the complete genotype of the great majority of these d (Hr$_o$) women is cde/cde. They are, therefore, rh-negative not only to D(Rh$_o$) but also to the other two specificities of the Rh factor. Sensitization of C (rh′) negative and E (rh″) negative individuals to the corresponding positive C and E factors occurs frequently in completely rh-negative individuals (genotype cde/cde).

Since approximately 85 per cent of individuals are positive to D (Rh$_o$), 60 per cent are positive to C and 15 per cent are positive to E (Table I), it follows, therefore, that 85 per cent of cde/cde women will have husbands positive to D, and, in addition, about half of these husbands will be positive also to C and about one-sixth will be positive also to E. It can be seen, therefore, that commonly cde/cde mothers are exposed to multiple antigens, e.g., D plus C (CD) or D plus E (DE), and may form several antibodies simultaneously (Table II).

Sensitization of rh-negative (cde/cde) individuals is the most common, but many other types of sensitization do occur. In all cases, the same principle holds: a person is sensitized to a blood factor which he does not possess—homozygous c (hr′) individuals can be sensitized to C (rh′); C (rh′) to c (hr′); d (Hr$_o$) to D (Rh$_o$); D (Rh$_o$) to d (Hr$_o$); e (hr″) to E (rh″); and E (rh″) to e (hr″). Furthermore, all of the more recently discovered Rh allelomorphs C^w, C^u, c^v, and D^u and the other blood factors, such as the MN, Kell, Lutheran, Duffy, Kidd and the Lewis, may be implicated in the same way. In fact, most of the Rh allelomorphs and most of the other blood group factors were discovered because of sensitization by multiple transfusions or pregnancy. However, the susceptibility to such sensitization varies tremendously and appears to depend both upon the antigen involved and upon the individual. In the case of some antigens the susceptibility is so slight as to be almost nonexistent. The reason for such variation is susceptibility to the various blood group antigens is not entirely clear.

As previously stated, the most susceptible to sensitization are d (Hr$_o$) individuals exposed to D (Rh$_o$). However, in pregnancy, this most common form of sensitization occurs only in about one in twenty exposures. Almost equally susceptible is a cd (Hr$_o'$) individual exposed to CD (Rh$_o'$) resulting in sensitization to both C (rh′) and D (Rh$_o$). Curiously a cd (Hr$_o'$) or a cD individual exposed to CD (Rh$_o'$) rarely develops sensitization to C (rh′) only. Sensitization to E is uncommon and even more rare is sensitization of C or E individuals to the negative C (c) or negative E (e). The most striking example of apparent contradiction is in the d-D relationship. As stated above, a d(Hr$_o$) person is relatively susceptible to sensitization by the D (Rh$_o$) antigen but a D (Rh$_o$) person is extremely resistant to sensitization by the d (Hr$_o$) antigen. Only three instances have been reported in the entire literature.[6,7,9]

Physicians often ask the question, "How can an Rh-positive woman become sensitized?" There are three ways in which this occurs. In the determination of Rh, the Rh antiserum used as a screening serum is an anti-D (anti-Rh$_o$) serum. This is the correct serum to use since bloods negative to this serum almost always (about 88 per cent) have the genotype cde/cde, that is, they are negative to all Rh specificities. However, bloods positive to this anti-D serum often are

CDe, cDE, or cDe, and therefore are negative to C (rh') or E (rh'') or both, even though they are positive to D (Rh_o). Occasionally as stated previously some of these women positive to D (Rh_o) but negative to C (rh') or E (rh'') can develop sensitization to C (rh') or E (rh'').

TABLE II. EXAMPLES OF RH INCOMPATIBILITIES

Mother or Recipient	Fetus or Donor	Antibody Formed	Frequency
cde/cde	CDe/CDe or CDe/cde	Anti-D or Anti-D & Anti C	Common
cde/cde	cDE/cde	Anti-D or Anti-D & Anti E	Common
cDE/cDE	CDe/cde	Anti-C	Rare
cde/cde	cDE/cde	Anti-E	Rare
CDe/CDe	cde/cde	Anti-c	Rare
cDE/cDE	cde/cde	Anti-e	Rare
CDe/CDe	cde/cde	Anti-d	Extremely rare

Another mode of sensitization is even more uncommon but does occur. The individual positive to any or all of the three specificities of Rh, for example, can become sensitized to the c (hr') or e (hr'') factors and presumably very rarely to the d (Hr_o). This is the so-called Hr sensitization.

Finally, the Rh-positive individual may be sensitized by pregnancy or by transfusions involving blood factors other than the Rh, such as the A, B, Kell, Duffy, Lutheran or others.

Table II lists various combinations of Rh genotypes as examples to illustrate possible Rh incompatabilities and the antibodies which might be formed. The table is arranged in the approximate order of the susceptibility to sensitization.

Laboratory Reports

When sensitization has occurred and antibodies are present, it is customary to measure the concentration of the antibody in terms of titer, i.e., the number of times the serum can be diluted and still produce visible evidence of agglutination. Immunologists often express not only the titer but the strength of the agglutination of each dilution. This is an expression of the degree of clumping and is of minor significance to clinicians. However, if a case is to be reported in the literature the inclusion of the expression is worth while. An example of a complete expression is "titer, 1:32," followed by the designation of the degree of clumping in each dilution: "33321000," which indicates 3-plus agglutination in the first tube or 1:2 dilution of serum, 3-plus in the second or 1:4 dilution and so on.

As stated in Part I of this review, the study of rh-negative mothers should include a determination of the father's genotype. If the father is heterozygous Rh positive and therefore carries also an rh-negative (Hr) gene, half of the children can be rh negative. If he is homozygous Rh positive, all of the children will be Rh positive.

A typical example of a report of a complete study of an rh-negative mother, disregarding for the time being the albumin and Coombs' titrations, is as follows:

"Mrs. X is rh negative (cde/cde) and Mr. X is Rh positive to both C (rh') and D (Rh_0) and is c (hr') positive and is therefore heterozygous to C (rh'). His most likely genotype is CDe/cde, and if this is so, there is an even chance that children born to this union will be rh negative and therefore normal so far as Rh incompatibility is concerned.

"The serum of Mrs. X shows that she is sensitized to both the D (Rh_0) and C (rh'). The anti-D titer is 1:32; 33321000, and the anti-C titer is 1:4; 21000000."

With only minor variations, the above illustration is typical of many reports. In many cases the father's genotype will be CDe/CDe, in which case he is homozygous and all the children will be Rh positive. Or, his genotype may be cDE/cde in which case the rh-negative mother may be sensitized to E (rh'') as well as D (Rh_o).

Modes of Action of Rh Antibodies

It is now well known that there are several types of Rh antibodies. These are identified by differences in their mode of action upon the specific antigen (Rh-positive red cells) when suspended in different media. The three types of antibodies for which tests are usually made are commonly called "saline," "albumin" and "Coombs" antibodies.

Originally the accepted method of carrying out a crossmatching of blood was to use a saline suspension of donor's red cells mixed with equal parts of the recipient's serum. It was to be expected that this same method would be used in the earliest Rh studies. Obviously the first type of antibody to be identified was therefore the saline antibody. Many instances of Rh sensitization were demonstrated by this method. But frequently negative mothers, unquestionably sensitized because they gave birth to erythroblastotic babies, did not have antibodies demonstrable by this method. Many physicians can recall in the early days of Rh studies patients who, according to laboratory tests, showed no evidence of sensitization but who, nevertheless, delivered babies obviously afflicted with erythroblastosis. Occasionally, too, a recipient of a "perfectly cross-matched" transfusion died of a hemolytic reaction.

Laboratory workers soon modified their methods. By substituting for saline either human serum or a concentrated solution of albumin in making the suspension of red cells, many more cases of sensitization were demonstrated. This high protein method, developed originally for study of Rh antibodies, has now been included in transfusion techniques and is today the accepted procedure in all crossmatching of bloods for transfusion. This method is not only a more sensitive procedure but it has uncovered a new type of antibody. Many studies seem to show that the two antibodies are different both in chemical structure and biologic activities. The most easily demonstrated difference between the two antibodies is that one is active in a saline medium and the other requires an albumin medium; hence the terms saline and albumin antibodies.

An incidental characteristic of the albumin antibody is worthy of mention because this property yielded the term "blocking antibody," which appears to be so firmly fixed in the Rh literature. Albumin antibody, if mixed with Rh-positive red cells suspended in saline, cannot agglutinate them, but apparently this antibody adheres to and coats and blocks the cells in some way so that they no longer can be agglutinated, as they otherwise should be, by saline antibodies; hence the term, blocking antibody. Another term synonymous with albumin antibody or blocking antibody is "incomplete antibody." A term employed as synonymous with saline antibody is "agglutinating antibody." The serum sold commercially as "test-tube" serum is a saline antibody and that which is sold as "slide" serum is an albumin antibody.

Up to this point have been mentioned only saline and albumin (sometimes called blocking) antibodies.

In studies on evidence of pathogenesis of erythroblastosis, it has been found that the anti-human, globulin serum tests of Coombs, Mourant and Race[3] is an important serological adjunct to the investigation of immunization whether by pregnancy or transfusion.

This test is now widely used in general laboratory work. Coombs postulated that if proper red cells (antigen) are mixed with corresponding antibody, the antibody would adhere to the surface of the red cells even if agglutination did not occur. Since antibodies are modified globulins, it follows that the red cells exposed to the antibody should now be coated with a layer of the modified human globulin. Coombs prepared an anti-human globulin serum by injecting rabbits with human globulin. When he added this anti-human globulin rabbit serum (now known as Coombs' serum) to the treated red cells coated with human globulin, agglutination promptly occurred.

The Coombs test gives a positive reaction for any type of antibody that fixes itself to red cells. Sensitized mothers give a positive reaction regardless of whether the antigen involved is the Rh factor or one of the others, such as the Duffy, Lutheran, Kidd, Lewis or others, providing (and this is a big technical problem in small laboratories) that proper test cells are available. Antibodies of unknown origin which fix themselves to red cells causing hemolysis and thereby producing hemolytic anemias can be demonstrated by the test. Transfusion reactions due to weak antibodies not demonstrated even by the improved methods of cross-matching may be identified by the Coombs test. Erythroblastosis can be differentiated from other types of anemias and jaundice of the newborn by means of the test. It is very probable that all of the possibilities of the test have not yet been explored.

It is common practice in Rh laboratories to do all three types of tests, namely, saline agglutinating, albumin agglutinating and Coombs, on every specimen for which Rh antibody titrations are indicated. The titer of these antibodies follows a fairly consistent pattern. Both the albumin titration and the Coombs titration demonstrate not only their own specific antibody but also all of the saline antibody so that the values of each of these two titers should be at least equal to the saline titer; for example: saline 1:64, albumin 1:64, Coombs 1:64. Not infrequently the saline antibody is relatively decreased or disappears; for example: saline nil, albumin 1:64, Coombs 1:64. Rarely both saline and albumin antibodies are low or absent and only the Coombs titer is present; for example: saline nil, albumin 1:16, Coombs 1:64. Occasionally the Coombs titer appears to be lower than the others. This probably is due to technical errors. As will be discussed later, the relative and not the absolute levels of these titers may be of some clinical significance.

The determination of sensitization to the various allelomorphs of the Rh system or to the other blood group antigens may be a long and tedious process. Study of a patient for one of the uncommon types of sensitization consists of setting up the serum against a large "panel" of known red cells. Some of these studies take several months to complete. To do such studies, the worker must have available an adequate "panel" of known sera and test cells. To assure the availability of known test cells and in view of the fact that cells are perishable, the worker must have at hand a list of people of selected groups who can donate of their blood as it is needed. A complication of this procedure comes from the fact that some genotypes are rare in the general population. Obviously these are not procedures one can request of the average hospital laboratory. Even in a laboratory devoted exclusively to sensitization studies such mass studies are not possible as routine procedures but rather come in the category of research. Such studies are carried out only when the usual routine tests are negative and the history given to the laboratory indicates that definite maternal sensitization or a true hemolytic transfusion reaction has occurred.

Routine Rh Studies

Physicians commonly ask: "What program of Rh studies should be routinely carried out in obstetrical practice?" It is difficult to recommend a program equally acceptable to all physicians. Some physicians prefer to study each individual baby for evidence of erythroblastosis and to carry out maternal Rh studies only in selected cases. Many physicians request of the Rh laboratory tests to determine the Rh group of all pregnant patients and tests on the serum of rh-negative ones during pregnancy as a routine to detect as early as possible the development of sensitization to Rh. At least two determinations for Rh antibodies are usually called for: one at the time of the woman's first appearance at the physician's office or the antenatal clinic; the other about six weeks to a month before the expected date of delivery. Other physicians request antibody determinations at the time of the first visit of the rh-negative woman and then every thirty days from the fifth or sixth month of pregnancy until term. The rationale for this early test is that the finding of antibody early in pregnancy indicates that the woman had become sensitized by an exposure to the antigen at some time previous to the current pregnancy. Antibodies resulting from an initial sensitization due to the current pregnancy are seldom detectable before the fifth month. The following outline presents a sequence which can be modified by physicians to suit their own needs.

I. The first time the expectant mother presents herself for examination, take a specimen of blood for Rh determination.
  1. If blood is found to be Rh positive, proceed no further unless there is history of previous erythroblastotic babies. In these rare instances arrange for special studies (ABO, Rh subgroups, MN, Duffy, Kell, et cetera).
  2. If blood is rh negative, proceed to step II.

II. If blood of expectant mother is rh negative, take specimen of blood from husband for Rh determination:
  1. If husband's blood is rh negative, proceed no further.
  2. If husband's blood is Rh positive, determine whether he is homozygous or heterozygous, and proceed to step III.

III. If husband is Rh positive, take specimen of wife's blood to be tested for presence and concentration of Rh antibodies. If—
  1. Wife is Gravida 1 and antibodies are absent, send another specimen of her blood to laboratory at about the thirty-fourth week of pregnancy for antibody titration.*
  2. Wife is Gravida 1 and antibodies are present, it likely means that she has been previously exposed to the Rh antigen by transfusion, by intramuscular inoculation of blood or by earlier unrecorded pregnancy.** Send specimen of her blood to laboratory at sixth and eighth months of pregnancy for confirmation of the sensitization.
  3. Wife is multipara with normal prior babies and antibodies are absent, send specimen of her blood to laboratory at end of fifth, seventh and eighth months of pregnancy for further antibody titrations.***

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*The statement that hemolytic disease of the newborn is rare in first pregnancies does not apply to women who have received previous transfusions or intramuscular injections of blood even in infancy. They may already be sensitized to the Rh antigen at the onset of their first pregnancy. It is now known that rh-negative women who have previously received any transfusions of Rh-positive blood are more likely than not to produce an affected child in any subsequent pregnancy.[5,13]

**It must be remembered that a pregnancy which terminates in an abortion, say at ten to twelve weeks, may be enough to sensitize a woman. Women who claim to be pregnant for the first time may be overlooking miscarriages manifested only by missed periods.[14]

***It is very important to be forewarned of the first erythroblastotic baby. This one probably can be saved and may be the last viable child of this woman.

4. Wife is multipara with prior erythroblastotic babies and,
   (a) husband is heterozygous, send blood for antibody studies at fifth, seventh and eighth months. A stationary titer indicates an rh-negative baby which should be normal.
   (b) husband is homozygous, all the children will be positive and the level of the antibody is of little value. Send her blood for study according to the individual circumstances: for the record or for academic interest. Blood from highly sensitized women is needed desperately for processing into diagnostic sera.

Interpretation of Laboratory Results

The interpretation of the degree of Rh antibody titer in the serum from the pregnant woman is indeed difficult. Our own findings convince us that there is little correlation between antibody titer as such in the mother's serum and the severity of symptoms of hemolytic disease in the newborn. The titer often shows little change during pregnancy even when there is an Rh-positive fetus *in utero*. Then again, it happens that there may be a small increase in the titer of the Rh antibody even though the fetus *in utero* is rh negative. If, however, the titer of antibody increases markedly, say twentyfold or more, it can be considered likely that the infant *in utero* is Rh positive.

The fluctuations in the Rh antibody titer are not always a safe guide to judge the prognosis to the baby. It is not altogether clear why this should be so. Quite likely the titer represents to some extent the amount of antibody present in excess of that absorbed by the fetus. One woman may form only small or moderate amounts of antibody but if the baby absorbs little or none, the antibody accumulates in the mother's circulation and produces a rising titer. Another woman may produce larger amounts of antibody which is largely absorbed by the fetus. In such a woman antibody is being withdrawn from her circulation and the titer may rise only slightly, remain stationary or actually fall. Often the titer falls sharply late in pregnancy, probably because the increased fetal volume absorbs large amounts of the available antibody. Generally speaking, however, a consistently high titer—and especially a rising titer—often portends a grave prognosis.

Perhaps some reliance might be placed upon the relative values of the saline and albumin antibody titers. The physician need not concern himself with the complex and still uncertain physicochemical differences between the two antibodies. Suffice it to say that there is evidence to indicate that the earlier and presumably less severe stages of sensitization produce a higher ratio of saline antibody relative to the albumin type. In later and presumably in the more severe stages, the saline antibody decreases or disappears and the albumin antibody titer is relatively high. In general, one would expect a better prognosis if the titer is "saline 1:64, albumin 1:64, Coombs 1:64" than if the titer is "saline nil, albumin 1:64, Coombs 1:64."

The time during the gestation period in which antibody appears seems also to be important. Generally speaking, the earlier in pregnancy that the mother becomes sensitized, the graver the prognosis for the infant.

By far the most important guide in judging the prognosis for the unborn child is the mother's past record. Sensitization of the Rh type is a progressive process. Once a mother has reached the stage where the fetus is critically affected, the outlook for future normal Rh-positive children is very poor. For this reason, it is extremely important that erythroblastosis of moderate degree be promptly recognized and actively treated. It is very probable that this moderately ill child is the last Rh-positive child of this mother which can be saved.

In cases of these highly sensitized women, the homozygous or heterozygous state of the husband becomes important (see item III-4 of the above suggested outline for prenatal studies). Because of the reciprocal relationship of Rh and Hr types, the determination of Hr becomes an important laboratory adjunct in prognosticating, within limits, the chances of producing Rh-positive and therefore erythroblastotic babies or rh-negative and therefore normal offspring in future pregnancies in families where congenital hemolytic disease has occurred. However, since at present the available supply of Hr antiserum is limited to anti-c (anti-hr′) only, the clinical application of the Hr factor must be restricted at present to testing directly for homozygosity and heterozygosity of types CDe (Rh_1) and Cde (rh′) individuals. Through population studies, however, with suitable antisera, it has been possible to determine the frequency of gene arrangements on chromosomes and the incidence of the Rh and Hr types. From tables that have been constructed, e.g. Table I (abbreviated form), it is possible for the laboratory worker to calculate the chances of a man being homozygous or heterozygous Rh positive in Rh types where the anti-c (anti-hr′) serum cannot prove it directly; and therefore predict the chances that a sensitized mother would have of producing normal offspring fathered by her Rh-positive husband.

Laboratory Tests on Infants

The direct Coombs test is one which is of proven value at this time. It requires a minimum of equipment and results are obtained in about fifteen minutes. The application of Coombs serum to cord erythrocytes offers a means of differential diagnosis between erythroblastosis and such confusing conditions as other types of jaundice and anemia of the newborn.

Although the cord is a convenient source of blood for laboratory study, there is danger of contamination by mucus. The cord should not be squeezed unnecessarily during the collection of the blood. Rh tests, grouping, and Coombs tests on cord blood are reliable. Hemoglobin determination, icterus, and bilirubin studies are distorted by clotting, hemolysis and contamination by mucus. These should be confirmed by study of peripheral blood.

The laboratory tests ordinarily available to pediatricians are as follows:

I. Rapid centrifugation of cord blood collected into a dry tube containing oxalate or heparin so that supernatant plasma may be examined grossly for presence of icterus.
II. Slide test for Rh to determine rapidly Rh type of infant.
III. If infant is Rh positive, direct Coombs test on red blood cells of infant to determine if cells are coated with Rh antibody.
IV. Hemoglobin determination on infant's blood.
V. Other less urgent tests:
  1. Erythrocyte count and differential.
  2. Rh antibody titration on blood serum from infant.
  3. Bilirubin content more accurately determined.

Preparation of Transfusions

Several of the newer studies on blood group antigens and antibodies find ready application in transfusion work.

The principle of the albumin (high protein) method of cross-matching of blood is unquestionably sound. Workers are continually searching for improvements in this method. Just as the albumin method of Rh antibody study has demonstrated many more cases of sensitization than was possible by the older saline method, so this same method applied to cross-matching of blood is far more reliable than the original saline method. The procedure is recommended without reservation, but it may be expected that refinements may be forthcoming.

The use of the Coombs test as an adjunct to the cross-matching of blood is proving of considerable value. As already discussed, saline and albumin types of antibodies may disappear or be of such low titer that they are almost imperceptible, yet the Coombs test can be strongly positive. Therefore, in a patient who is having reactions to transfusions, the next transfusion should be cross-matched by the albumin method, and if this is negative, the cross-matching should be still further studied by means of the Coombs test. The same precaution can be followed in preparing transfusions for women who have borne erythroblastotic babies or in patients who have had many prior transfusions.

The selection of rh-negative blood for sensitized rh-negative recipients should be done with exceptional caution. Since laboratories ordinarily have no knowledge of the patient's prior clinical record, the physician has the obligation to warn the laboratory; or better yet, the laboratory should regard all rh-negative patients as dangerous recipients.

Patients negative to the anti-D serum generally have the genotype cde/cde and as already stated are often sensitized to C or E as well as D. Therefore, the blood administered to rh-negative patients must be tested not only with anti-D serum, but also with anti-C and anti-E serum. Up to 2.42 per cent of the population have the genotype Cde/cde[20] and up to 1.3 per cent have the genotype cdE/cde[15] (depending on the racial distribution in the population).

The problem, however, is even more complex. In about 1.6 per cent of the population the allelomorph D^u reacts weakly or not at all with anti-D serum,[16] and many individuals having this D^u variant are typed as rh negative (cde). Such mistyped blood given to sensitized cde individuals can produce serious reactions. Generally the cross-matching, if done by the high protein method, should give some suspicion of incompatibility. If there is any question regarding the cross-matching, or, as stated above, if the recipient is known to be sensitized, the extra precaution of a Coombs test is indicated.

Summary

1. The basic principle of blood group sensitization has been modified very little since the initial work on the Rh factor. Individuals inoculated with blood factors which they themselves do not possess may react to them as though they were a foreign antigen.

2. Rh-negative (d) individuals given positive blood by transfusion or injection develop sensitization in most instances. On the other hand, sensitization by pregnancy in rh-negative individual occurs in only 5 per cent of the cases. An injudicious transfusion or injection of Rh-positive blood into an rh-negative woman may militate against the possibility of her ever giving birth to normal babies.

3. The Rh allelomorphs other than D and various other blood factors more recently discovered can cause sensitization, but there is marked variation in the incidence of sensitization to the various factors. Anti-C and anti-E sensitization are relatively common but only when combined with anti-D sensitization. The other allelomorphs and blood group antigens cause sensitization only occasionally. These latter factors do not need to be investigated in routine transfusion or Rh work but must be investigated when the usual causes of erythroblastosis and hemolytic transfusion reactions have been excluded.

4. Rh antibodies are of three types: saline, albumin and Coombs. The saline antibody receives its name because it will agglutinate red cells suspended in saline. The albumin antibody will agglutinate red cells only if they are suspended in an albumin medium. The Coombs test, which identifies the Coombs antibody, is a very valuable procedure applicable to many other types of laboratory studies. All its possibilities still may not have been developed.

5. Routine Rh work on obstetrical patients usually involves study of the D-d factors only. If, however, sensitization is definitely known to be present, as indicated by an erythroblastotic baby, and is not accounted for by D-d incompatibility, other blood factors must be investigated. Such studies may be quite involved.

6. A complete Rh study of an rh-negative woman includes tests for the three types of antibodies, titration of each, tests for coincident C or E antibodies, and the genotype determination of the husband to identify his homozygous or heterozygous state.

7. A sequence of Rh studies depending upon the parity of the mother and her previous clinical record is presented.

8. Emphasis is put upon identifying the first appearance of sensitization during the child-bearing period. It is believed that the one or two pregnancies in which the sensitization cycle is just starting may yield mildly affected children which can be saved by proper treatment.

9. Antibody studies in rh-negative women with advance sensitization is of value only if the husband is heterozygous and rh-negative children are therefore possible. The Rh status of the unborn infant can be forecast by such studies with acceptable accuracy.

10. Prognosis should not be based solely upon levels of Rh-antibody titer. Such levels probably represent the excess of antibody above that absorbed by the fetus and do not necessarily measure the amount actually combining with the infant's tissues. However, the relative amounts of saline and albumin antibody may be of prognostic value. The saline antibody appears to be less harmful, and the prognosis is better if this type predominates. The time during pregnancy at which sensitization occurs appears to have prognostic importance. The best prognostic guide is the mother's past history. Rh sensitization is progressive and once a mother has reached the stage of advanced sensitization, the chances for further normal children are almost non-existent unless the father is heterozygous and the next child is rh negative.

11. An increasing amount of the data collected by the Rh worker is being applied to general transfusion work. An example at point is the high protein method of cross-matching which is now the accepted method in many laboratories. The significance of the D^u allelomorph is another example. This allelomorph often gives a weak or negative reaction to anti-D sera. Such a D^u blood is often grouped as rh negative (d) and if transfused into a sensitized cde patient may give a serious reaction. The Coombs test may be used as an adjunct to the cross-matching of blood for recipients who have received many transfusions or for rh-negative women known to have borne erythroblastotic babies.

References

1. Bessis, M.: La maladie hemolytique du nouveau-ne. Paris: Masson et Cie, 1947.
2. Boorman, K. E.; Daley, D., and Dodd, B. E.: The relation between the results of ABO and Rh Tests

and clinical condition of 2,000 mthers and infants. J. Obst. & Gynec., 54:281, 1947.

3. Coombs, R. R. A.; Mourant, A. E., and Race, R. R.: A new test for the detection of weak and 'incomplete' Rh agglutinins. Brit. J. Exper. Path., 26:255, 1945.
4. Diamond, L. K.: Progress report to Committee on Medical Res. of the Office of Sci. Res. and Dev. O.E.M. cmr 384, (Nov. 1) 1944.
5. Diamond, L. K.: The clinical importance of the Rh type. New England J. Med., 232:447-475, 1945.
6. Diamond, L. K.: Physiochemical and immunological characteristics of Rh antibodies. International Hemotology and Rh Conference, Dallas, 1946 (unpublished data).
7. Haberman, S.; Hill, J. M.; Everist, B. W., and Davenport, J. W.: The demonstration and characterization of the anti-d agglutinin predicted by Fisher and Race. Blood, 3:683-688, 1948.
8. Hartmann, O.: Personal communication referred to by Race, R. R., and Sanger, Ruth: Blood Groups in Man. Springfield, Illinois: Charles C Thomas, 1950. p. 234.
9. Hill, J. M., and Haberman, S.: Two examples of sera containing the anti-d agglutinin predicted by Fisher and Race. Nature, London, 161:688, 1948.
10. Landsteiner, K., and Wiener, A. S.: An agglutinable factor in human blood recognized by immune sera for rhesus blood. Proc. Soc. Exper. Biol., 43:223, 1940.
11. Levine, P., and Stetson, R. E.: An unusual case of intragroup agglutination. J.A.M.A., 113:126-127, 1939.
12. Levine, P.; Katzin, E. M., and Burnham, L.: Isoimmunization in pregnancy, its possible bearing on the etiology of erythroblastosis foetalis. J.A.M.A., 116:825-827, 1941.
13. Levine, P., and Waller, R. K.: Erythroblastosis fetalis in the first born. Blood, 1:143, 1946.
14. Mollison, P. L.; Mourant, A. E., and Race, R. R.: Rh blood groups and their clinical effects. Privy Council, Medical Research Council, Memorandum No. 19, London, 1948.
15. Race, R. R.; Taylor, G. L.; Cappell, D. F., and McFarlane, Marjorie N.: Recognition of a further common Rh genotype in man. Nature, London, 153:52-53, 1944.
16. Rosenfield, Richard E.; Vogel, Peter; Miller, Edward, B., and Haber, Gladys: Weakly reacting Rh positive (D^u) bloods. Blood, 6:1123-1134, 1951.
17. Schwartz, H. A., and Levine, P.: Studies on the Rh factor. Am. J. Obst. & Gynec., 46:827, 1943.
18. Wiener, A. S., and Peters, H. R.: Hemolytic reactions following transfusions of blood of the homologous group, with three cases in which the same agglutinogen was responsible. Ann. Int. Med., 13:2306-2322, 1940.
19. Wiener, A. S., and Sonn-Gordon, Eve B.: Simple method of preparing anti-Rh serum in normal male donors. Am. J. Clin. Path., 17:67-70, 1947.
20. Wiener, A. S.; Davidsohn, I., and Potter, Edith L.: Heredity of the Rh blood types. II. Observations on the relation of factor Hr to the Rh blood types. J. Exper. Med., 81:63-72, 1945.

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19. Markson, D. E.: Prolonged treatment of rheumatoid arthritis with pituitary adrenocorticotropic hormone (ACTH). J.A.M.A., 141:458-459 (Oct. 15) 1949.
20. Michael, Max, Jr.; Cummings, M. M., and Bloom, W. L.: Course of experimental tuberculosis in the albino rat as influenced by cortisone. Proc. Soc. Exper. Biol. & Med., 75:613-616 (Nov.) 1950.
21. Popp, Carol G.; Ottosen, Poul, and Brasher, C. A.: Cortisone and pulmonary tuberculosis. J.A.M.A., 147:241-242 (Sept. 15) 1951.
22. Rome, H. P., and Braceland, F. J.: Psychological response to corticotropin, cortisone, and related steroid substances. J.A.M.A., 148:27-30 (Jan. 5) 1952.
23. Selye, Hans: The Physiology and Pathology of Exposure to Stress: A Treatise Based on the Concepts of the General-Adaptation-Syndrome and the Diseases of Adaptation. Montreal, Canada: Acta, Inc., 1950.
24. Smyth, G. A.: Activation of peptic ulcer during pituitary adrenocorticotropic hormone therapy. J.A.M.A., 145:474-477 (Feb. 17) 1951.
25. Spain, D. M., and Molomut, Norman: Effects of cortisone on the development of tuberculous lesions in guinea pigs and on their modification by streptomycin therapy. Am. Rev. Tuberc., 62:337-344 (Oct.) 1950.
26. Sprague, R. G.: Effects of cortisone and ACTH. In Thimann, K. V.: Vitamins and Hormones. New York: Academic Press, 1951.
27. Sprague, R. G.; Power, M. H.; Mason, H. L.; Albert, A.; Mathieson, D. R.; Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Observations on the physiologic effects of cortisone and ACTH in man. Arch. Int. Med., 85:199-258 (Feb). 1950.
28. Sprague, R. G.; Mason, H. L., and Power, M. H.: Physiologic effects of cortisone and ACTH in man. In: Proceedings of the Laurentian Hormone Conference. Pp. 315-365. New York: Academic Press, Inc., 1951.
29. U. S. Veterans Administration's Quarterly Progress Report, p. 23, (Oct.) 1950.
30. Ward, L. E.; Slocumb, C. H.; Polley, H. F., and Hench, P. S.: Cortisone in the treatment of rheumatoid arthritis. (Abstr.) Unpublished data.

AMNIOTIC FLUID EMBOLISM

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THE following case is typical of the relatively rare condition known as amniotic fluid embolism. The case is of special interest because it contributes to our understanding of the mechanism of this obstetrical accident.

Case Report

The patient was a gravida 4, with two living children. One child had died during delivery because of a prolapsed cord and breech presentation. In 1947 the patient apparently had an early abortion, followed by irregular bleeding which ceased after a curettage.

In June of 1949, she again became pregnant. Except for a mild anemia, the pregnancy was uneventful. On April 18, 1950, she was admitted to Fairview Hospital about four hours after the onset of labor. The cervix was dilated to 2 cm. Labor progressed slowly. At 2:00 p.m. she was given 75 mg. of demerol and 1/200 gr. of scopalomine. Pains became more regular, and at 2:45 p.m. she was taken to the delivery room. The cervix was now dilated to 3 cm. She was nauseated with her pains, and twice she vomited small amounts of greenish liquid. She was drowsy and slept between pains. At 3:15 p.m. she had an involuntary defecation and urination. At 3:53 p.m. the nurse made the following entries: "Patient turned on side by herself. Became rigid. Head thrown sharply back. Very cyanotic. Does not respond. Patient very cyanotic; respirations gasping. Pulse imperceptible. B. P. 130/60." Various attempts at stimulation and resucitation, including prolonged artificial respiration, were unsuccessful.

An autopsy examination was conducted at 8:00 p.m. of the same day. The lungs were moderately heavy and edematous. The left lung weighed 450 grams and the right weighed 440 grams. The lower lobes were partially atelectatic. The bronchi and the trachea showed no foreign material, and the pulmonary arteries showed no emobli. There was no air in the heart.

Examination of the external surface of the uterus showed no suggestion of trauma, hemorrhage, or other changes. The uterus contained a normal term female infant, which lay with its back anterior and its head down. The membranes were ruptured. About 200 cc. of thick green fluid remained in the uterine cavity, and this was contained in the interspaces between the legs and the arms and in the space around the neck. The fetal head was in the lower uterine segment. The membranes had separated along the lower part of the uterine wall and the muscle of the lower uterine segment was bare for distances varying from 2 to 4 inches. On the exposed posterior wall of the uterus, a small depression was observed, which, when explored with the tip of a forceps, proved to be a sizeable channel. A rubber catheter, such as is used for male catheterization, easily passed through the opening into the interior of the uterine wall and appeared in the large veins in the right broad ligament. Blood recovered from the right common iliac vein and from the lower vena cava, when spread out on the white porcelain tabletop, showed numerous flakes of green mucoid material. One of the larger pieces was about 1 mm. in diameter and 5 or 6 mm. in length.

Approximation of the fetus into its original position within the uterus indicated that the opening into the uterine vein was in about the position of the space formed by the fetal neck and the small parts.

Microscopic study showed approximately the same picture in all the lobes of the lungs. In every section there were many small arterioles and capillaries containing foreign material made up of squamous epithelial debris, amorphous material, mucus and leukocytes. A few foci of leukocytes were present in the lung parenchyma which had the appearance of beginning exudation.

One receives two impressions from this microscopic study of the lungs. The early exudative reaction suggests that the embolism of amniotic sediment was not a terminal explosive event but had been going on for many minutes or even hours. Perhaps the patient's nausea, vomiting, involuntary bowel movement and involuntary urination indicated the beginning of the embolism. The second impression is that the degree of embolism produced only moderate vascular occlusion and that death was due to causes other than mechanical obstruction. It is very likely that "shock" similar to that caused by foreign material in a blood transfusion may have been the final cause of death.

In the past twelve years, there have been seven other maternal deaths at Fairview Hospital; cardiac decompensation associated with old rheumatic valve lesions (two); heart failure associated with lues (one); fulminating eclampsia (one); abdominal complications following cesarean section (one); and pulmonary embolism (two). Unfortunately neither of these two cases of maternal death attributed to pulmonary embolism came to autopsy, and the cause of the deaths could not be confirmed.

The first of these so-called embolic deaths occurred in 1940. The patient, a primipara, was admitted on June 18, 1940, in the care of Dr. M. P. Baken. She was delivered of a normal female infant after an eight-hour labor. The baby was born at 11:05 a.m., and the placenta was expressed at 11:09 a.m. At 12:00 p.m.

the blood pressure was 100/68. At 2:00 p.m., the nurse recorded that the patient was cold and clammy. There was no bleeding and the blood pressure was 100/68. At 3:00 p.m. the pulse was 82 and was weak. The patient was cold and perspiring, and the blood pressure was not obtainable from this time on. The hemoglobin was 74 per cent (Sahli) and the red blood cell count was 3.7 million. At 5:00 p.m., the patient was nauseated, and at 7:00 p.m. she vomited. At 8:00 p.m. she complained of shortness of breath and pain in the abdomen. At 8:15 marked dyspnea set in, and respirations became difficult and labored. The patient died at 8:50 p.m. Death occurred eight hours and fifty-five minutes after delivery and six hours and fifty minutes after the initial observation that the patient was "cold and clammy."

The second of these deaths attributed to pulmonary embolism occurred on April 2, 1948. This patient, a twenty-three-year-old primipari, was admitted to Fairview Hospital in the care of Dr. W. D. Brown on April 1, 1948, in normal labor at term. The child was born at 10:17 p.m., and the placenta was delivered at 10:20 p.m. The patient was moved to her room at 11:05 p.m. The blood pressure was 130/72. At 12:00 midnight, she was examined by the nurse, who charted that the fundus was firm and there was moderate bleeding. At 12:10 a.m. the nurse recorded the following: "Patient screaming for water. Apparently having air-hunger, coughing frothy blood from mouth and nose. Patient extremely apprehensive. Unable to hear blood pressure. Pulse 130, weak and irregular." Cyanosis developed very quickly, and the patient expired at 12:25 a.m., fifteen minutes after the onset of the seizure.

It is impossible, since autopsy examinations were refused, to be certain of the exact cause of death in these two instances, but the probability is very great that it was amniotic fluid embolism. If this explanation is accepted, amniotic fluid embolism accounted for three of the eight maternal deaths in this hospital.

Amniotic fluid embolism was first brought to the attention of the medical profession in 1941 by Steiner and Lushbaugh,[18] who reported eight cases. In the following year they reported two more cases.[9] It was their impression that embolism by amniotic fluid, instead of being a rarity, was the most common cause of death during labor or within the first few hours thereafter.

Since Steiner and Lushbaugh's initial study, numerous other reports have been published. Hemmings[5] in 1947 presented the eleventh published case, and in conjunction with this case study he reviewed 254 maternal delivery deaths and found that the attending physicians had attributed the deaths to pulmonary embolism in thirty-seven (14.5 per cent). These clinical diagnoses were not confirmed by autopsy studies. Hemmings also called attention to a survey of delivery deaths in New York City, in which 7.4 per cent were attributed to embolism, and to another in Philadelphia, in which 11.2 per cent were thought to be due to embolism. Gross and Benz[4] in 1947 reported three cases, all occurring in their practice within one year.

In spite of such indications of fairly common incidence, cases of amniotic fluid embolism actually confirmed by autopsy studies are rare. As late as 1948 Watkins[19] found only eleven recorded cases confirmed by autopsy, and he added one more. Mallory and his group[10] in 1950 reported three cases, which were the first confirmed by autopsy in the State of Massachusetts.

Restudy of all the autopsy material from cases of maternal death at both Boston City Hospital and the Boston Lying-In Hospital failed to show any cases of amniotic fluid embolism. May and Winter[12] restudied autopsy material from eighty-one post-partum deaths and could not find a single instance of amniotic fluid embolism. Steiner and Lushbaugh[9,18] reported their ten cases in 1941 and 1942, but it was not until seven years later (1949) that they, together with Frank, reported another case.[17] Up to the present time, there appears to be about thirty-two cases recorded. Hemmings'[5] study of embolic maternal deaths reveals an amazing low percentage of autopsy examinations. This difficulty in obtaining consent for autopsies may be partially due to the confusion and grief attending the tragic and unexpected death. Actually, because of this exclusion of some of the cases of sudden unexpected death, the reported autopsy series may not be a good representation of the entire group of maternal labor deaths.

It was brought out by Gross and Benz[4] that blood should be aspirated from the right side of the heart in all cases of maternal delivery death. Such an aspiration is permissible since it can hardly be construed as a mutilation of the body. The procedure may be of great value, not only if autopsy permission is refused, but also if embalming is carried out prior to an autopsy study. By centrifuging the aspirated blood, the various elements are layered out. In case of amniotic fluid embolism, the floating elements can be recovered from the surface of the serum and the remaining amniotic debris from the top of the leukocytic "cream" immediately under the serum layer. In our case, blood from the vena cava was spread on the porcelain top of the autopsy table, and numerous flakes and strands of green mucoid material could easily be seen. Shotten and Taylor[16] reported the first case where particles of vernix could be seen grossly in the heart's blood.

Even though the total number of cases is small, the general pattern and sequence of symptoms is quite uniform. The patient most often is a multipara who is in active labor and is having hard uterine contractions. The clinical picture is that of shock and respiratory distress occurring either during labor or shortly thereafter. Symptoms develop abruptly, or at least very quickly. Often there is preliminary nausea and vomiting. The patients show an abrupt and severe drop in blood pressure. They are cold, clammy, and have a weak, fast pulse. The respirations are rapid and often gasping. There may be air hunger, cyanosis, and pulmonary edema. Uterine bleeding occasionally is present. This may be due to relaxation of the uterus secondary to the shock and the collapse. However, bleeding may occur elsewhere—for example, from the nose, from the lung, into the abdomen or mesentery. Weiner and Reid[20] noted that thirteen of twenty-two reported cases had some hemorrhagic manifestation. They believe that amniotic fluid in the circulating blood interferes with the clotting mechanism.

More than a third of the mothers died in the first hour after symptoms developed, and about three-fourths died within five hours. The remainder lived longer, and one lived eleven and one-half hours. One patient died from associated conditions on the seventh day. Steiner and Lushbaugh[9,18] believe that not all cases are fatal. In one of their cases death was due to other causes and the presence of amniotic sediment in the lungs was only a secondary finding. This observation, together with their experimental work, indicates that survival can occur.

Study of the reported cases indicates that there is no specific etiology. It is obvious that congenital disturbances in the structure or position of blood vessels cannot be a factor, because the majority of patients have had previous pregnancies without any complications. Many contributory factors have been suggested. Steiner and Lushbaugh[9,18] suggest that intact membranes or closure of the uterine outlet by the fetal head, together with hard uterine contractions, may force amniotic fluid into the placental veins. Leary and Hertig[8] demonstrated squamous cells from the amniotic fluid within the placenta and its membrane, and suggested that such extravasation is not uncommon in labor. Landing[7] found squamous cells present in the uterine vessels in from one-third to one-fourth of the uteri removed as operative or autopsy specimens in cases of placenta acreta, ruptured uterus, cesarean section, retention of placenta and premature separation of the placenta. In three of his cases, squamous cells from the amniotic fluid were found also in the lungs. These studies indicate that the entry of amniotic fluid into uterine vessels may not be uncommon and that subclinical or mild forms of amniotic fluid embolism might occur.

In about one-half of the reported cases, some tear or surgical incision into the uterus, cervix or placenta was present. Our case is unique in that a very large communication between the uterine cavity and the maternal circulation was demonstrated.

The sequence of events during amniotic fluid embolism has been postulated by Shenken, Slaughler, and DeMay[14] as follows: The outlet to the uterus is closed by the fetal head. The amniotic fluid, containing considerable debris, is trapped above it. A tear exists in the veins of the placenta or the uterus, and the uterine contractions force the trapped fluid into these open vessels. Most cases occur during labor, which indicates that active uterine contractions are a factor in the process. However, in about one-fourth of the reported cases, symptoms developed after delivery. Presumably in such cases, the open vessels exert a suction effect upon the remaining uterine contents and must actually aspirate the material from the postpartem uterine cavity.

It is believed by the various authors that death in these cases of amniotic fluid embolism is not due to purely mechanical obstruction of the pulmonary circulation. The manner of death is similar to that resulting from the intravenous injection of improper fluids or the transfusion of contaminated blood. The anaphylactoid reaction probably is associated with spasm of the pulmonary vessels. Death may be hastened by postpartem hemorrhage due to uterine atony.

The diagnosis of maternal embolism by amniotic fluid can be verified only by the demonstration of amniotic fluid sediment in the heart or lungs either by autopsy or cardiac puncture. However, there must be non-fatal cases, and these, of course, cannot be confirmed in this way. Seltzer and Shuman[15] reported a case in 1947 in which embolism apparently occurred eighteen minutes after delivery. A state of collapse lasted for thirty-six hours and was followed by recovery. Unquestionably the diagnosis of non-fatal amniotic fluid embolism is justified, but the diagnosis should not become a shelf upon which to place all cases of obscure obstetrical shock or unexplained death.

In some of the fatal cases death did not occur for several hours and in one not until after eleven and one-half hours. There is time, therefore, to carry out various therapeutic procedures. Active therapy may not be a useless gesture, since it is conceivable that if the patient could be carried over the initial period of shock, she might survive.

Active treatment consists of combating the collapse and preventing or treating pulmonary edema. On the basis of experimental studies, Steiner and Lushbaugh,[9,17,18] suggested that papaverine may be of help in abolishing the reflex vascular spasm in the pulmonary vessels, thereby helping to decrease the obstruction to the pulmonary circulation and to prevent pulmonary edema. Atropine may help to abolish the cardiac depressor reflexes from the lung. Adrenalin probably is contraindicated because of the tendency to increase the spastic obstruction to the pulmonary blood flow. An ordinary blood transfusion may increase the danger of pulmonary edema. However, an intra-arterial transfusion should be of tremendous benefit in combating peripheral vascular collapse. Oxygen should be given if pulmonary edema has already developed.

Conclusions

Embolism by amniotic fluid is a rare and unavoidable accident of labor. It can occur either during labor or immediately thereafter. Presumably, the amniotic fluid can be forced into the open veins by uterine contraction or can be aspirated by the vessels after the uterus is empty. Death is due to the toxicity of the material rather than to mechanical occlusion of the pulmonary vessels. There is some evidence that individuals may survive, and active treatment of shock may increase this survival rate.

References

1. Barron, S. S.; Sturley, R. F., and Lindsay, D. T.: Amniotic fluid and meconium embolism. Minnesota Med., 32:70-72, 1949.
2. Crowder, Com. R. E., and Bills, Lt. Com. E. S.: Obstetrical shock due to pulmonary emboli of amniotic fluid. Am. J. Obst. & Gynec., 60:1388-1389, 1950.
3. Goodof, I. I.: Maternal pulmonary embolism by amniotic fluid. Report of a case. J. Maine M. A., 38:101-102, 1947.
4. Gross, P., and Benz, E. J.: Pulmonary embolism by amniotic fluid. Report of three cases with a new diagnostic procedure. Surg., Gynec., & Obst., 85:315-320, 1947.
5. Hemmings, C. T.: Maternal pulmonary embolism by contents of the amniotic fluid. Am. J. Obst. & Gynec., 53:303-306, 1947.
6. Jennings, E. R., and Stofer, B. E.: Pulmonary emboli composed of contents of amniotic fluid. Arch. Path., 45:616-621, 1948.
7. Landing, B. H.: The pathogenesis of amniotic fluid embolism. II. Uterine factors. New England J. Med., 243:590-596, 1950.
8. Leary, O. C., and Hertig, A. T.: The pathogenesis of amniotic fluid embolism. I. Possible placental factors—aberrant squamous cells in placenta. New England J. Med., 243:588-590, 1950.
9. Lushbaugh, C. C., and Steiner, P. E.: Additional observations on maternal pulmonary embolism by amniotic fluid. Am. J. Obst. & Gynec., 43:833-838, 1942.
10. Mallory, G. K.; Nelson, B.; Sparling, H. J., and Nickerson, D. A.: Maternal embolism by amniotic fluid—report of three cases and discussion of the literature. New England J. Med., 243:583-587, 1950.
11. Marcuse, P. M., and Dixson, C. K.: Pulmonary embolism due to amniotic fluid. Am. J. Obst. & Gynec., 61:695-698, 1951.
12. May, H. W., and Winter, F. D.: Amniotic fluid embolism, an infrequent cause of maternal death. Surg., Gynec. & Obst., 92:231-232, 1951.
13. Newberger, C.: Maternal pulmonary embolism by amniotic fluid. Illinois M. J., 98:301-303, 1950.
14. Schenken, J. R.; Slaughter, G. P., and DeMay, G. H.: Maternal pulmonary embolism of amniotic fluid. Am. J. Clin. Path., 20:147-152, 1950.
15. Seltzer, L. M., and Schuman, W.: Nonfatal pulmonary embolism by amniotic fluid contents with report of a possible case. Am. J. Obst. & Gynec., 54:1038-1046, 1947.
16. Shotton, D. M., and Taylor, C. W.: Pulmonary embolism by amniotic fluid (a report of a fatal case together with a review of the literature). J. Obst. & Gynaec., Brit. Emp., 56:46-53, 1949.
17. Steiner, P. E.; Lushbaugh, C. C., and Frank, H. A.: Fatal obstetrical shock from pulmonary emboli of amniotic fluid. Am. J. Obst. & Gynec., 58:802-805, 1949.
18. Steiner, P. E., and Lushbaugh, C. C.: Maternal pulmonary embolism by amniotic fluid. J.A.M.A., 117:1245-1254; 1340-1345, 1941.
19. Watkins, E. L.: Sudden maternal death from amniotic fluid embolism. Am. J. Obst. & Gynec., 56:994-996, 1948.
20. Weiner, A. E., and Reid, D. E.: The pathogenesis of amniotic fluid embolism. III. Coagulant activity of amniotic fluid. New England J. Med., 243:597-598, 1950.
21. Wyatt, J. P., and Goldenberg, H.: Amniotic fluid embolism. Report of a fatal case. Arch. Path., 45:366-370, 1948.
22. Van Wering, R. F.: Embolism due to amniotic fluid. Two cases with death shortly after delivery with autopsy confirmation. Nederl. Tijdschrift Verlock. Gynaec. (Haarlem), 50:315-396, 1950 (Abst., J.A.M.A., 145:300, 1951).

EXSTROPHY OF THE URINARY BLADDER

Discussion of Anatomical and Surgical Principles Applicable to Its Repair, With Preliminary Report of a Case

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THOUGH sporadic attempts have been made to relieve this condition by plastic procedures, the results have not been consistently satisfactory, and the recent feeling widely expressed and recorded has been that ureterointestinal implantation and cystectomy is the only practical treatment.[6,7,8,10,12] The dangers and disadvantages of that treatment (principally pyelonephritis and hydronephrosis) have been so widely discussed as to need no further mention here.[1] The methods of turning the bladder or trigone into the rectum with preservation of the ureterovesical sphincters offer some protection to the kidneys, and the method of Boyce and Vest[1] reported to the American Urological Association in 1951 deserves commendation.

But all those methods are admittedly compromises. Review of the literature finds scattered attempts at plastic repair of the urinary tract without opening the intestinal tract. Most of these attempts have left the patient incontinent, and so have failed. An extremely few, one or two in Europe[9,11,13] and the well-known case of Hugh Young in this country,[15,16] have achieved repair with control of urine, but time has not proved that these results could be repeated by the authors or by others.

The operation reported by J. Edward Burns[2] in 1924 seemed to me to hold out the best promise, but in a later discussion elsewhere Cunningham[3] reported that Burn's patient was still incontinent, even though his bladder was closed, and that therefore the treatment had failed. Cunningham's feeling that "the overcoming of incontinence is the main object and can be accomplished only by diverting the urine to the bowel" seems to be still the prevailing opinion today.

Still we feel that Burns made a very important and unappreciated contribution in insisting that the bladder be placed in the bottom of the pelvis with obliteration of the retrovesical peritoneal pouch so that any increase in intra-abdominal pressure would push the bladder down and not forward against the anterior abdominal wall.

In the early weeks of embryonic life, the retroperitoneal pouch extends down to the apex of the prostate. The deeper part of the pouch is obliterated during fetal life, the opposing peritoneal surfaces coming together as the layers of Denonvillier's fascia.[14] The method of Burns accomplished the same result.

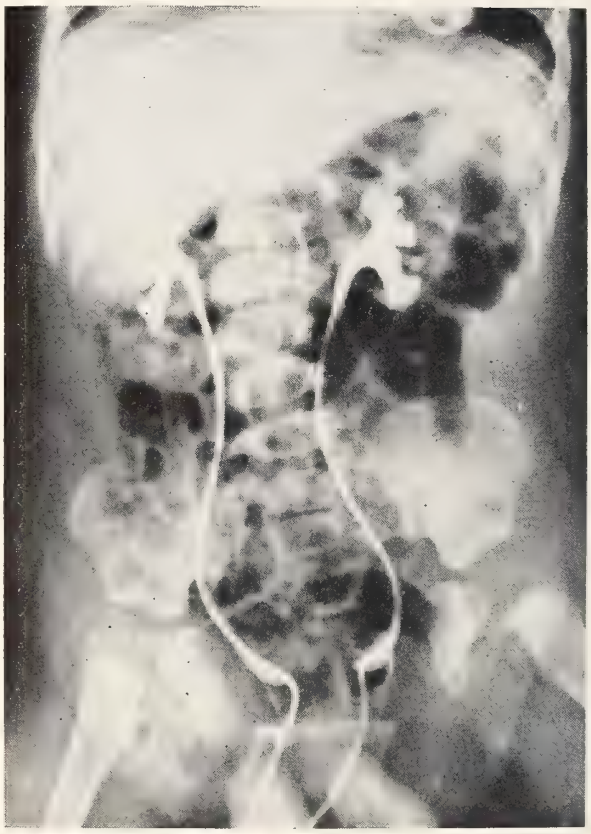

Fig. 1. Preliminary pyeloureterogram at age four months.

It seemed to us that perhaps Burns failed to eliminate incontinence because he used an open perineal operation for repositioning of the bladder and so possibly injured the nerve supply; it is recognized that operations of the prostate through the pelvic floor carry some danger of urinary incontinence. The simplified method for repositioning the bladder should avoid that danger and thus help in insuring a good functional result. With the bladder well down in the pelvis, the obtaining of urinary control should be possible in spite of

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Read at the annual meeting of The Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

the prevailing skepticism. Years after the report by Burns F. K. Garvey[5] showed a beautiful movie depicting the cure of epispadias with incontinence in the female, and in October, 1949, Dees[4] read the excellent paper on the cure of epispadias with incontinence in the male. Both authors reported good urinary control and voiding. It seems to us that placing the exstrophic bladder in its normal position in the bottom of the pelvis should reduce the problem to the same problem that Dees and Garvey had for the cure of epispadias with incontinence.

Construction of the urethra by the Dees method after repositioning of the bladder results in a normal S-curve of the urethra, as shown in the lateral urethrocystogram. Probably that also is an important factor in accomplishment of urinary control.

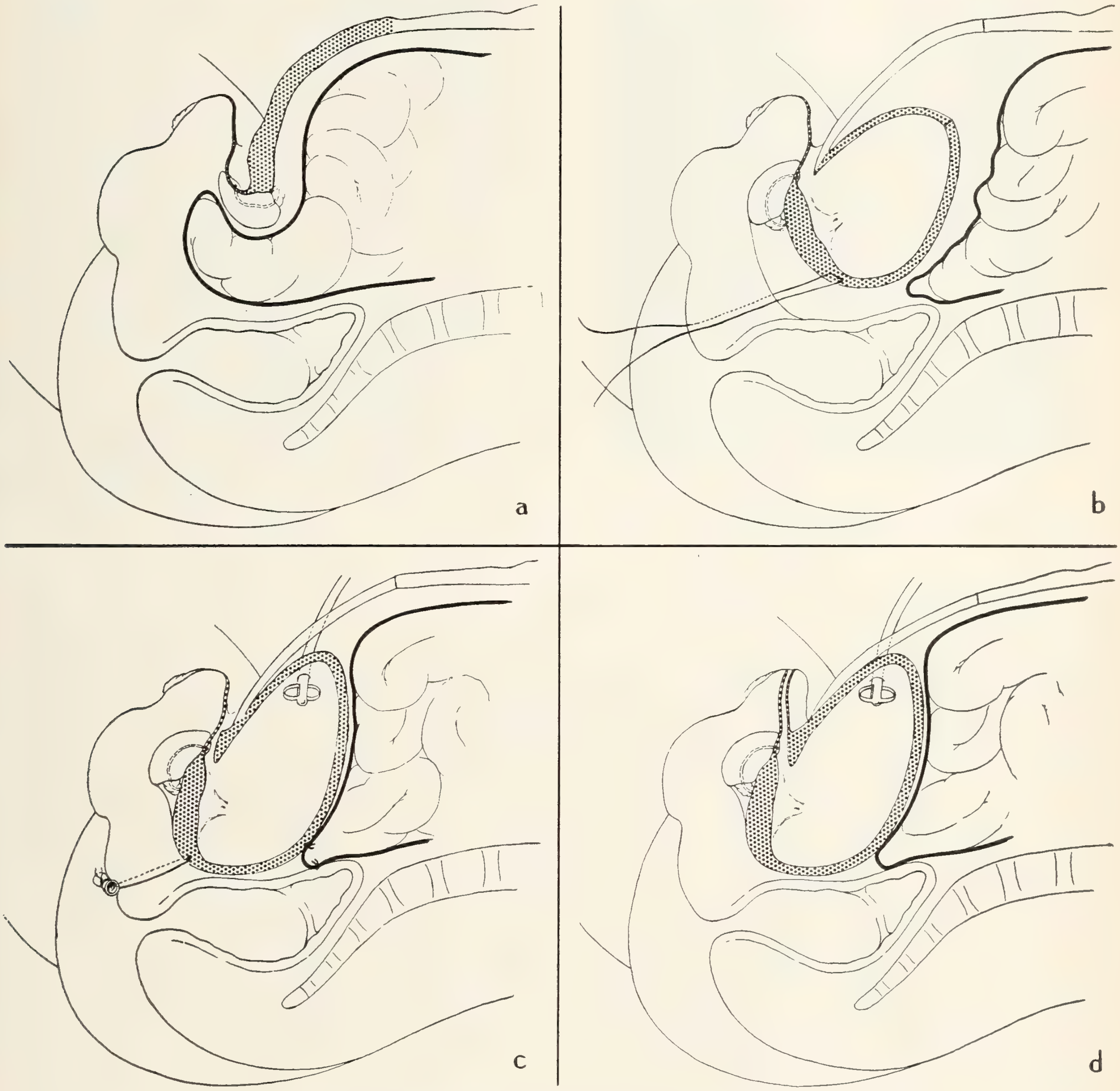

Fig. 2. Median sagittal diagrams to show stages in the operative treatment:

(a.) The condition before operation.

(b.) The bladder freed, the peritoneum freed from bladder and rectum and pushed up, and the first mattress suture passed out through perineum.

(c.) The first operation completed; the bladder fastened down in place, the peritoneum displaced upward, the bladder and posterior urethra closed.

(d.) The second operation completed; the epispadias repaired.

One other problem remains: the age at which such operations should be done. There seems to be a widespread feeling that the operation should wait until the age of four to seven years though in the last few years Higgins,[8] Meredith Campbell, and some others have recommended ureterosigmoid anastomosis before the age of one year. We feel that the first plastic operation should be done by the age of six months in order to avoid the structural changes due to mucosal exposure and infection, and the second operation may safely be done before the age of eighteen months, even though voluntary urinary control is not certain in normal children at that age.

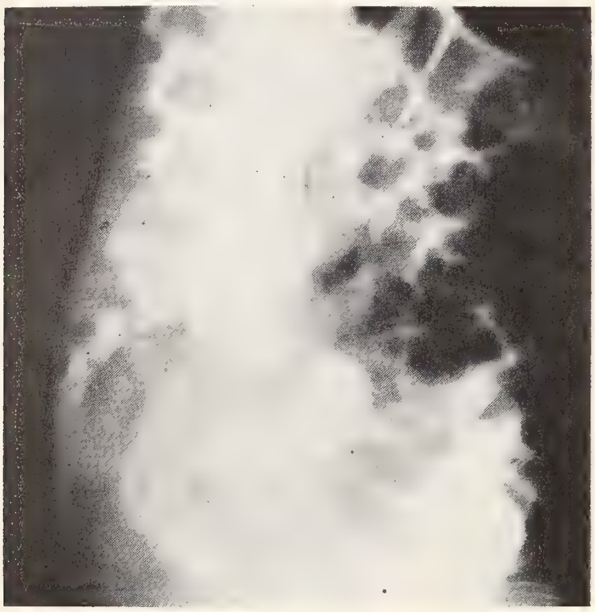

Fig. 3. Lateral cystograms showing the bladder in normal position in the bony pelvis.

Case Report

This boy was born October 15, 1950, apparently normal excepting a typical exstrophy of the bladder with wide anterior defect of the abdominal wall and bony pelvis, bilateral subluxation of the hips and bilateral inguinal hernia. It was advised that surgical treatment be postponed for five or six months to avoid the general surgical risks of the newborn.

On April 16, 1951, retrograde ureteropyelograms were made (Fig. 1) which demonstrated normal upper urinary tracts with the exception of slight dilatation of the lower parts of both ureters. The thick bladder wall lay open on the lower abdominal wall. Clear urine came forth from both ureters normally. The open bladder extended downward from the area of the umbilicus to an open depression at the site of the bladder outlet, which was continuous with the wide open urethra (Fig. 2a); the corpora cavernosa of the penis were behind the shallow groove of the open urethra which extended beyond to the end of the glans penis. Testes were in the scrotum.

On April 17, 1951, at the age of six months, the first operation was performed. An incision was made around the junction of the bladder wall with the abdominal wall. The dome of the bladder was freed from the peritoneum part way down laterally and posteriorly. The peritoneum was then opened and the pelvis explored and the hernias closed from inside. On exploration the pelvic peritoneal pouch extended clear to the pelvic floor beyond the apex of the prostate (the embryonic state); the rectum and sigmoid were normal. The peritoneum was then further freed from the bladder clear to the bottom of the pouch and then upward from the rectum. A silk suture was then placed in the bladder muscle at the midline posteriorly just above the trigone, and its long ends passed out through the perineum on needles well to each side, a finger being in the rectum to prevent damage to that organ (Fig. 2b). Another silk suture caught the posterior bladder wall to each side of the midline suture, avoiding the ureters, and its ends were similarly passed out through the perineum. The ends of those two silk sutures were later tied over short pieces of rubber tubing on the skin of the perineum. The freed peritoneum was then attached to the anterior wall of the rectum and the posterior wall of the bladder high up to obliterate the deep peritoneal pouch previously present. The thoroughly freed bladder was then closed in the midline anteriorly with drainage by wing-tipped catheter passed out through a stab wound in the right anterior bladder wall and right rectus muscle. The bladder outlet and deep urethra were narrowed by removing a triangular piece of mucosa at each side before closing over a No. 10F soft rubber catheter as described by Dees, the catheter being then removed. The anterior abdominal wall was then closed over the bladder and deep urethra by turning a triangular flap of each rectus sheath over

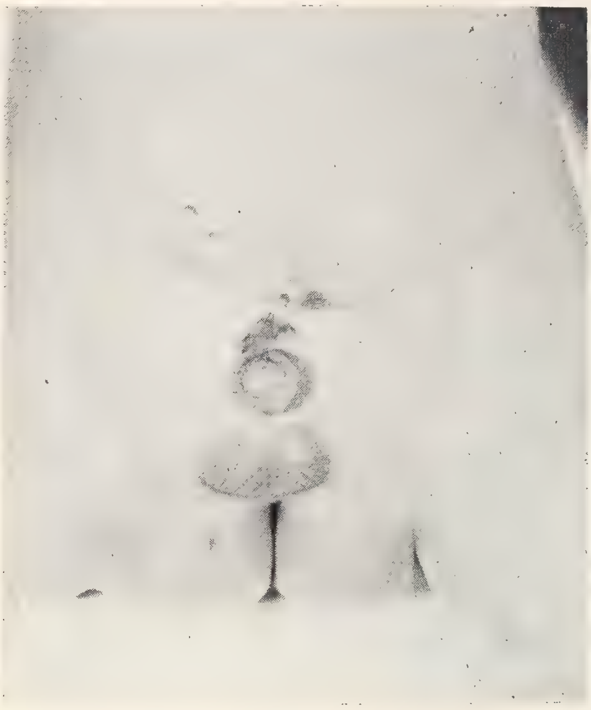

Fig. 4. Photograph of the boy at age nineteen months, three months after the second operation.

the midline and downward with considerable overlapping and without tension using silk sutures. The skin was closed over it. Convalescence was smooth and result thus far satisfactory (Fig. 2c).

On July 11, 1951, the anterior epispadias was repaired by the method of Dees over a No. 10F soft rubber catheter, but the catheter unfortunately was left in place and most of that repair broke down. On February 7, 1952, at the age of sixteen months, examination with an infant panendoscope showed a good bladder of about 50 cc. capacity with a satisfactorily closing outlet. Repair of the distal urethra was again carried out, the urethra being closed with No. 0000 chromic catgut sutures, and the overlying tissues with fine wire sutures tied over a small vitheline tube at each side. The urethral catheter was then removed, leaving only a nylon thread extending through the urethra and bladder and out alongside a newly placed suprapubic drain (Figs. 2d, and 3).

The repair of bladder and urethra have healed well excepting a pinpoint fistula at the base of the penis. Voiding is in considerable amounts from the normal urethral meatus on the glans with a good stream, though there is a little leakage under stress only from the pinpoint fistula (Fig. 4). The urine is clear. While, of course, no final statement as to urinary control can be made at this time, at present the condition seems to be what normally could be expected from a child of this age.

Conclusions

The widespread defeatist attitude regarding plastic operations for the relief of exstrophy of the urinary bladder is not justified.

The rosy picture of the life of the patient after ureterosigmoid implantation is also unjustified and it is not even certain that such a patient has a better outlook than one who has no surgical treatment at all.

We believe that the presently described two-stage operation for (1) repositioning and closure of the bladder, anterior abdominal wall, and posterior urethra, and for (2) closure of the distal urethra can be confidently expected to result in normally functioning bladder and urethra with good urinary control.

Sympathetic co-operation between the urologic and pediatric surgeons, the pediatrician, the anesthetist, and the parents is of great value in ensuring a good result by permitting operation at an early age.

Acknowledgment

The excellent work of the anesthetist, Stanley P. Wesolokski, M.D., and of the artist, Jean Hirsch Fish, is gratefully acknowledged.

Bibliography

1. Boyce, W. H., and Vest, S. A.: A new concept concerning treatment of exstrophy of the bladder. J. Urol., 67:503 (Apr.) 1952.
2. Burns, J. Edward: A new operation for exstrophy of the bladder. J.A.M.A., 82:1587 (May 17) 1924.
3. Cunningham, J. H.: Discussion of article by Lincoln Davis. Boston M. & S. J., 191:1201, 1924.
4. Dees, J. E.: Congenital epispadias with incontinence. J. Urol., 62:513 (Dec.) 1949.
5. Garvey, F. K.: Movie (cinema). Repair of epispadias with incontinence. Shown at American Urological Association meeting 1946.
6. Goyanna, R.; Emmett, J. L., and McDonald, J. R.: Exstrophy of bladder. J. Urol., 65:391 (March) 1951.
7. Hepburn, T. E.: Exstrophy of bladder. J. Urol., 65:389 (March) 1951.
8. Higgins, C. C.: Exstrophy of bladder: Review of seventy cases. J. Urol., 63:852 (May) 1950. (Also see editorial note by W. W. Scott following review of that article in Yearbook of Urology. Chicago, Ill., Yearbook Publishers 1950, p. 235).
9. Janssen, J.: Zentralbl. f. Chir., 60:2658 (Nov. 11) 1933.
10. Ladd, W. E., and Lanman, T. H.: Bladder exstrophy and epispadias. New England J. Med., 222:130 (Jan. 25) 1940.
11. Michon, Louis: Conservative operations for exstrophy of the bladder, with particular reference to urinary incontinence. Brit. J. Urol., 20:167 (Dec.) 1948.
12. Rizzi, R.: Transplantation of exstrophied bladder into sigmoid. Urologia, 14:212 (Aug. 20) 1947.
13. Thompson, A. Ralph: Brit. M. J., 2:3 (July 3) 1937.
14. Wyburn, J.: J. Anat., 71:201, 1937.
15. Young, Hugh H.: Young's Practice of Urology. Philadelphia: W. B. Saunders Co., 1926.
16. Young, Hugh H.: Exstrophy of the bladder. Surg., Gynec., & Obst., 74:729 (March) 1942.

BRITISH DOCTORS GET PAY HIKE

The 20,000 doctors under Britain's socialized medicine setup finally received their pay increase, which will cost taxpayers nearly $100,000,000 between now and next March. The raise, retroactive to the start of the socialized medical service in 1948, represents an average payment to each doctor of nearly $5,000.

The raise came after the doctors threatened to leave the scheme high and dry last year.

Doctors at present earn $1.70 a year for every patient on their books, and they can have 4,000 patients. The average, however, is 2,300. The increase will mean about $1,500 more yearly.—*Secretary's Letter A.M.A.*, July 14, 1952.

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF CARCINOMA OF THE CERVIX

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I HAVE chosen as my subject one that offers a great challenge to us because it concerns a lethal disease and a relatively common one. Next to carcinoma of the breast, cervical cancer is the most common malignant lesion in women. Today approximately one out of four women who are treated for this disease die as a result of it. And yet, I will point out to you that there is great hope of bettering our salvage from this serious neoplasm. Fifteen years ago cervical cancer would have been about as dead a subject as one could select. The diagnosis of cervical cancer was made from a gross and usually advanced lesion; the diagnosis was confirmed by biopsy and the treatment was irradiation. Today, it is one of the most controversial subjects in gynecology. The renewed interest has been due chiefly to progress in three directions:

1. The discovery and proven practical use of cytology, as demonstrated by Papanicolaou and Trout.
2. The recognition of carcinoma *in situ* and a better understanding of its relation to invasive cervical cancer.
3. A re-valuation of the surgical technique in the treatment of cervical cancer.

Before we discuss our newer knowledge of the disease, let me emphasize a few of the things that we have known about the symptomatology and diagnosis for many years—things that are all too frequently forgotten or disregarded by many practitioners. This is regrettable because practitioners are our first line of defense against this malignancy, and failure to diagnose and treat it properly at the first opportunity often means that the only opportunity of cure has been lost.

Cervical cancer is not primarily a disease of old age. The average age is forty-eight years, but many cases occur in the thirties and some in the twenties.

Cervical cancer is not limited to parous women. About 10 per cent of our cases occur in nulliparous women, and that figure is probably pretty close to the percentage of nulliparous women in that age group.

Cervicitis probably predisposes to cervical cancer. The absolute proof of this statement is difficult, but there is strong evidence to support it. Several years ago Pemberton and Smith at the Woman's Free Hospital in Boston found an almost complete lack of cancer in a large group of women who had been properly treated for cervicitis. More recently Gagñon, who has had a wide gynecological experience among the nuns of Quebec, city and province, found an almost complete lack of cervical cancer among this group of women, in whom cervicitis occurs at a minimum. Cancer of the corpus uteri, on the other hand, was found to be as common among nuns as in the general population.

Although cervical cancer may proceed to a relatively advanced stage before giving rise to symptoms, in the majority of the cases abnormal uterine bleeding takes place when the disease is curable. If the lay public could be informed of this single fact and the practitioners could be made to carry out the necessary simple diagnostic procedures, such as the inspection and biopsying of all cervices of women with intermenstrual or postmenopausal bleeding, there would be a tremendous increase in our cure rate of this disease.

In the State of Maryland we are spending some of our cancer society money in an attempt to find out the reason for delay in diagnosis after the appearance of abnormal uterine bleeding. There has been functioning for the past six months a committee of the state medical society to determine where and why there is so frequently a delay. We have a secretary-social-worker who interviews patients with pelvic cancer at the participating hospitals in an attempt to learn from the patient the date of the appearance of the first symptom, the date of her first visit to her family physician, the type of examination done, the type of treatment instituted and the time of her reference to a qualified clinic or gynecologist. With the proper social worker this interview can be done without arousing the slightest suspicion on the part of the patient. Once a month the com-

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Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

mittee selects a certain number of these cases in which there has been delay and discusses them at an open meeting to which every doctor who has had any connection with the case is invited. The cases are anonymous and the doctors concerned are anonymous to all except the chairman. In the case summaries given out to the audience the doctors are designated as Dr. A, B, C, et cetera. Discussion is free and frank. If the attending doctors wish to declare themselves, they are at liberty to do so, and not infrequently they bring in extenuating facts which may explain the delay in treatment. When a practitioner leaves the meeting he should know without any doubt that he has done wrong if he has given a woman estrogens for bleeding in the menopausal age without doing a complete pelvic examination. We consider that there has been "delay" when there has been the loss of over one month of time between the appearance of the first symptom and the institution of proper therapy. We have found patient delay about three times as frequently as physician delay, but it is most revealing to find out how often the chance of cure is missed by failure of the physician first consulted to make a proper examination. The meetings are conducted not in a critical way but with the hope of educating those members of the profession who are not as cancer-minded as they should be.

Papanicolaou smears have now been used widely enough so that the practice may be fairly evaluated. Since the establishment of cancer detection centers in Maryland we have routinely biopsied and taken smears of all women coming to the center. We are not convinced that this double procedure should be carried out routinely, but we have done it as a study to evaluate both the smear and biopsy techniques and to compare them. In a series of 2,321 cases we have found the following:

Total number of smears and biopsies	2,321	
Smear and biopsy benign	1,939	
Smear and biopsy—carcinoma	79	
False positive smears	27	1.1 %
False negative smears	17	0.73%
Doubtful smears	179	7.6 %
Unsatisfactory smears	78	3.3 %
Positive smear correct—negative biopsy incorrect	2	

An analysis of the doubtful smears follows:

Total number of doubtful smears	179	
Biopsy benign	135	74.9 %
Basal cell hyperactivity	19	10.6 %
Biopsy carcinoma	25	13.9 %

If one checks the smears of a series of proved carcinoma cases, the results are as follows:

Total number proved carcinomas	129	100 %
Biopsy positive	127	98.5 %
Smear positive	81	62.8 %
Smear doubtful	25	19.3 %
Smear negative	17	13.7 %
Smear unsatisfactory	6	4.7 %
Biopsy negative	2	1.5 %

From the above analyses we have concluded that the smear technique is of great value as a screening process of the "normal" female population. The percentage of errors will be very small, but the percentage of errors by biopsy will also be very small. We believe that the two procedures should not be considered as competitive but as complementary. If both procedures are carried out on *suspicious* cases, there will be very little chance of error. However, when dealing with advanced cervical cancer the sloughing necrotic cellular debris makes the chance of error by smear fairly high. In such cases there is little point in making a smear. The gross lesion can usually be readily seen and biopsied and an unequivocal diagnosis promptly made. Therapy should never be carried out on the report of a positive smear, unconfirmed by biopsy. When biopsy is doubtful, we have found sharp conization of the cervix with extensive microscopic study of all of the tissue to be most useful. We have not found cytology to be very helpful as a means of following response to therapy or of determining whether further therapy is indicated. There are too many abnormal cells found in smears after irradiation to make cytologic study valuable. In fact, we believe it can be very misleading. It is perhaps unnecessary to say today that cytologic diagnoses should only be made by trained cytologist. Even a well-trained pathologist may not be a competent cytologist. Finally, it should be emphasized that cytology is time-consuming and expensive. Most of the cytologic laboratories operating today are endowed and are not paying their own way.

Within the past decade the question of carcinoma *in situ* has become an important one in the minds of most gynecologists. Opinion is not crystallized on this subject among gynecologists or among general pathologists. There are three vital questions that should be answered:

1. What is carcinoma *in situ?*
2. What is its relation to invasive cervical cancer?
3. How should it be treated?

I shall attempt to answer the question—what is carcinoma *in situ?*—first. Probably the first case of carcinoma *in situ* ever to appear in the literature was described by Rubin in 1910. He did not call it by its present name but simply described and pictured two early cases of cervical cancer. Two years later Schottländer and Kermauner described the same microscopic picture in the surface epithelium around the periphery of advanced cervical cancer. It was Walter Schiller who first conceived the idea that perhaps invasive cervical cancer in its early stage existed for a prolonged time as intraepithelial, only to become invasive months or years later. By definition, then, carcinoma *in situ* is a condition of the surface cervical epithelium in which the individual cells have every characteristic of invasive cancer cells, but they remain on the surface or displace the columnar epithelium of the cervical glands. By common consent most students of the disease have agreed to include as carcinoma *in situ* the cases in which the glands have been invaded. It should be emphasized that carcinoma *in situ* is a histopathological diagnosis which applies only to the microscopic picture within the microscopic field. Actually the cervix from which that bit of tissue has been obtained may harbor carcinoma only on the surface epithelium. It may also harbor glandular "invasion" or it may harbor invasive cancer. The invasive cancer may even be extensive as it was in Schottländer and Kermauner's original cases. So let us remember that when we use the term "carcinoma *in situ,*" we are not describing the entire neoplasm.

Now let us consider the second question: the relation of carcinoma *in situ* to invasive cancer We know from Schottländer and Kermauner's description that it *may* occur on the periphery of invasive cancer, but is that only a coincidence? Does carcinoma *in situ* proceed to invasive cancer and, if so, how frequently? Is invasive cervical carcinoma invariably preceded by carcinoma *in situ.* I should like to throw some light on these questions from our own experience. Our first experiment consisted in biopsying the cervix of every patient on the ward service on whom we planned to perform a hysterectomy for myomata, recurrent functional bleeding, et cetera. In those cases in which carcinoma *in situ* was found on biopsy the cervix which was removed by total hysterectomy was cut into several blocks and semi-serial sectioning was done of each block. A careful study was made of each section. In approximately three-fourths of the cases we found either gland "invasion" or true invasion. The actual percentage of true invasion is difficult to ascertain because there are too many cases in which the differentiation between glandular invasion and true invasion is equivocal. That is about all the evidence that we are able to produce by purely histologic study.

There is something to be learned by following these cases clinically. We had seen a few cases in which clinical invasive carcinoma had developed where a previous biopsy showed intra-epithelial carcinoma. Other similar cases began to appear in the literature, and this was *suggestive* that in at least some instances pre-invasive cancer precedes the invasive growth. This could be a coincidence if it occurs only occasionally, so it is highly important to know how frequently invasive cancer is preceded by the pre-invasive type. From 1941 to 1951, inclusive, we treated 723 cases of cervical cancer. We found on going through the histories of these women that thirteen of them had had their cervices biopsied in our clinic from one to seventeen years before. We still had the slides and blocks of tissue available for study. Upon making a study of the early slides or of slides obtained by cutting more sections of the blocks we found carcinoma *in situ* to be present in eleven of the thirteen cases. In one case there was no epithelium present in the block so it must be excluded. That reduced the cases for complete study to twelve. In the twelfth case a diagnosis of intra-epithelial carcinoma could not be made, but there was much evidence of hyperactivity of the basal epithelium. It appears to us that the pre-existing presence of carcinoma *in situ* in eleven out of twelve cases available for study is very significant. The shortest time interval between the initial biopsy and the discovery of the clinical cancer was one year and longest time seventeen years. It appears, then, that in the vast majority of cases in which study was possible pre-invasive cancer existed before the development of clinical invasive cancer. But that is not to say that this invariably is the case—nor can it be said that intra-epithelial carcinoma invariably becomes invasive cancer. I think in our present state of knowledge we would have to say that the latter is not true. Knowing, as we do, that carcinoma *in situ* may remain non-invasive for many years, it is quite certain that many women die of other diseases before the carcinoma becomes invasive. In our present state of knowledge it would appear that clinical cervical cancer, as we have been accustomed to think of it, is only a short span of the complete life of the carcinoma. This is borne out by the fact that the average age of the women in our series with cervical cancer is thirty-six years and the average age of clinically invasive cervical cancer is forty-eight years.

Our treatment of carcinoma *in situ* has been removal of the entire uterus with a moderate amount of parametrial tissue and a reasonable vaginal cuff. We believe that he vaginal cuff is the most important deviation from the ordinary total hysterectomy technique because often the cervical lesion extends to the very edge of the cervix and in a few instances to the vaginal cuff. In young women we have on several occasions saved one or both ovaries. We have now operated on over 150 such cases, and all of the women are well. Slightly over fifty of them have been well for more than five years after their operation. During this time we have treated eight cases of intra-epithelial carcinoma with irradiation. Among them there was one death, and, strangely enough, it occurred within six months after treatment. Autopsy showed metastatic cancer. Since our original study required a histological examination of the removed cervix, our original treatment was by surgery. The results have been so good that we have hesitated to change to irradiation although there is little doubt that a high percentage would be salvaged by irradiation. Another advantage offered by surgery is the preservation of ovarian tissue in the younger patients. Since many of the patients are in the third decade, the desirability of saving ovarian function is obvious.

There is no doubt from our results that we are treating these patients adequately. The question may justly arise as to whether we are overtreating them. Fortunately, all of the students of this disease have not approached the problem the same way. Paul Young, for example, has tried to evaluate his cases before treatment to a fine degree as to glandular and true invasion by extensive biopsying. Those in which the disease is strictly limited to the surface epithelium he has treated by catuerization, conization or amputation. Of forty-one cases treated thus conservatively, fourteen subsequently required further treatment for cervical cancer. Young has done an important experiment. How shall we interpret the result? Personally, I believe that such treatment is not justifiable when fourteen of the patients require further treatment for a lethal disease. It is true that some children have been born to women in Young's series after the diagnosis of carcinoma *in situ* was made, but one cannot help but wonder whether this calculated risk is justifiable. In my opinion it would be justified only under most unusual circumstances and when the patient is under very close observation by an expert. The weak point in attempting to evaluate accurately the extent of the disease preoperatively lies in the fact that one never knows the extent of the disease until the entire uterus has been removed and carefully studied microscopically. Our pathological material has shown this repeatedly.

I hope that what I have said about the surgical treatment of carcinoma of the cervix *in situ* will not be construed as applicable to invasive cervical cancer. I firmly believe that the treatment of invasive cervical cancer is irradiation. There are a few exceptions to this general rule, of which I will speak later. In order to form an opinion regarding therapy for this disease, one should look at the question historically. At about the turn of the century Cullen reported in his classical volume on *Cancer of the Uterus* that 26 per cent of the cervical cancers that had been operated upon by radical hysterectomy and pelvic lymph node dissection were well five years later. Some years later radium became available, and some of the more advanced cervical cancers were treated with it. In many instances there was surprising improvement and in some instances cure. Then some of the less-advanced cases were treated with irradiation, and the results steadily improved, until in recent years the over-all five-year cure rate with irradiation reached 25 to 30 per cent. Some series have shown better than a 30 per cent five-year cure. These irradiation results are much better than Cullen's operative results because his 26 per cent cure rate was based on only the cases operated upon, whereas the irradiation results were based on all cases seen. For comparison of these irradiation results, let us look at some later operative results. Sir Victor Bonney of London spent his entire active surgical career performing the radical Wertheim type of hysterectomy for cervical cancer. His last report was on the results of 600 operations performed by him. He operated upon 63 per cent of the cervical cancers that he saw and had a five-year cure rate of 41 per cent. If one multiplies 63 by .41, the answer is 25.8, practically the same percentage of cure attained by irradiation in most clinics. His operative mortality was 14 per cent. In 1950, Charles Read, Bonney's successor, came to this country and spoke on his results with the Wertheim type of radical hysterectomy with lymph gland dissection. He had modified his views considerably from those of his former teacher, Bonney. Operability had been reduced from 63 to 14 per cent, and his five-year cure for Stage I and II combined was 44 per cent. Operative mortality had been reduced to 5.5 per cent, as might be expected with greater selectivity of the cases. The percentage of five-year salvage of Stage I and II from most irradiation clinics exceeds the figure reported by him. For example, Read reports an 80 per cent five-year salvage of Stage I and 61 per cent salvage of Stage II in the Madame Curie Hospital.

The percentage of urinary fistulas resulting from irradiation and surgery is approximately the same, in the neighborhood of 10 per cent. However, these figures are not really comparable. The fistulas resulting from irradiation occur most often in the advanced cases where life expectancy is usually short, whereas the fistulas resulting from surgery occur in the individuals having "operable" lesions. These are the earlier cases which have a good chance of permanent cure. It is one thing to be responsible for a urinary fistula in a woman whose life expectancy is only a year or two and quite another thing to create one in a woman who has a long life expectancy.

Finally, Meigs has carried on a surgical experiment on early cases which were carefully selected as being good operative risks. He has performed over 150 operations, more radical than Wertheim's, without a single death. He has recently reported on eighty-five cases which were operated upon five or more years before. Of his Stage I cases he has a five-year salvage of 80 per cent. This percentage of cures is somewhat better than the usual 70 per cent reported from the better irradiation centers, but the figures are not quite comparable. Meigs' cases were a selected group, and it must be remembered that the patients who are better operative risks also respond better to irradiation. Meigs, then, has shown that in the hands of an expert the results with surgery in Stage I cervical cancer are slightly better than with irradiation. However, these results do not give *carte blanche* to every gynecologist or surgeon to attempt radical pelvic surgery which requires special training and ability. Perhaps one of the greatest sins today in surgery is the attempting on the part of the average pelvic surgeons to do the radical hysterectomy with pelvic lymph gland dissections, only to end up with an incomplete operation. The woman with Stage I cervical cancer has a much better chance of survival when irradiated than when operated upon by the average pelvic surgeon. The more advanced the lesion is, the greater becomes the advantages of irradiation therapy over surgery. In our clinic we perform radical hysterectomy and pelvic lymph node dissection only upon irradiation resistant cases of Stage I and rarely Stage II. The resistance to irradiation therapy can usaully be detected within five or six weeks after irradiation is instituted.

GRAY LISTS $137 MILLION SAVINGS, $40 MILLION IN MEDICAL FIELDS

Veterans Administrator Carl R. Gray, Jr., reporting on his four years as head of the organization, lists economies of $137 millions, with approximately $40 millions saved in medical fields. His summary was presented to the House Veterans Affairs Committee. Savings in the medical department (other than in construction and administration) were said to include:

1. Reduction and control of number of physical reexaminations for adjudicatory action—$25,250,000 saved.
2. Standardization of procedure for collection of fees from insurance companies for hospitalization of veterans with non-service connected conditions—$7,200,000, "which would not otherwise have been paid the government by the insurance companies."
3. Inventory and personnel economies in pharmaceuticals—at least $2 million.
4. VA's operation of its own blood bank program—$3 million saved.
5. VA's operation of its own dental laboratories—$2.3 million saved.

The above economies do not represent reductions in overall spending. VA's total budget for fiscal 1948 was $6,922,457,320, with the medical department getting $588,561,819. For fiscal 1952 the total estimated budget was $4,409,265,220, with $703,190,160 for medical activities.—*Capitol Clinic,* July 8, 1952.

SURGICAL LESIONS OF THE BREAST

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WHEN a physician is confronted with a patient, who recently has discovered a lesion in the breast, his responsibility for an early, correct diagnosis and adequate therapy is tremendous. The end result will be directly related to his knowledge of the underlying pathological process and to his ability to establish a correct diagnosis and institute early adequate therapy. Fortunately, because of an increased awareness on the part of the public, due to widespread education regarding lesions of the breast, patients are presenting themselves at an earlier stage in their disease than they have done in the past. The medical profession has long advocated the need for patients to present themselves early, but only recently have patients been instructed in a systematic thorough method of self-examination of their breasts so that very early lesions might be detected before the pathological process becomes widespread. Much credit is due to the American Cancer Society[17] and others[15] in disseminating to the public this type of valuable information. Better results in the future will be forthcoming.

In the vast majority of cases, lesions of the breasts are accidentally discovered by the patients themselves. Too often when they have been casually discovered they have already assumed rather sizeable proportions and have spread far beyond the confines of the breast. Only occasionally is an unknown lesion of the breast found on routine physical examination. Economically, it is not feasible for a patient to have professional examinations of her breasts often enough for early lesions to be detected. For this reason, periodic self-examinations of the breast as advocated by Haagensen, would seem to offer the best means at our disposal, at this time, in bringing early lesions to our attention. Patients should be taught systematically to palpate their breasts while in the supine position, to note any change in symmetry, any change in the contour of the skin or nipple and to observe if any discharge can be expressed from the nipple. They should be taught that whenever anything that seems to them at all unusual is found, they should present themselves immediately for professional evaluation of their findings.

Physicians should likewise familiarize themselves with a thorough method of examining the breasts of the patient in both the sitting and supine position. Inspection as to changes in the contour of the breast showing the retraction phenomenon of the skin overlying the pathological process is certainly one of the most valuable methods of examination. Indeed, it often gives the clue to tumor before palpation of the tumor can be certain. An attempt to express discharge from the nipple often will give valuable information as to an early lesion of the breast. The need for uniform thorough examinations of the breasts by a physician and correct evaluation of lesions is of extreme importance. In a recent study of a series of breast tumors,[17] it was found that in 27 per cent the patients had been given wrong advice by the first physician whom they consulted.

The breasts are derived from the sweat glands and are composed of fifteen to twenty-five lobes which radiate from the nipples.[8] The lobes are composed of lobules which in turn are made up of acini. The acini are lined by two layers of cells, an inner layer of columnar cells which are secretory in function and an outer layer of flat ovoid cells which are regenerative in function. Separating the acini and lobules are strands of connective tissue which attaches to the skin—the so-called suspensory ligaments of Cooper. These connective tissue septa in disease become fibrosed and contract causing the retraction phenomenon, or dimpling of the skin, which is so often the tell-tale evidence of underlying pathology. Traversing throughout the breast is a network of lymphatics which, according to Adair,[3] drain into nodes in the base of the axilla, then extend into nodes along the subclavian vein to the group lying behind the pectoralis minor muscle. Drainage likewise extends to the nodes in the falciform ligament or extend upwards into the base of the neck or into the mediastium. Knowledge of these pathways is essential in ascertaining the extent of involvement when neoplastic disease is encountered, as well as to what constitutes a radical mastectomy when neoplastic disease is to be erradicated.

Hormones have a profound influence on the

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

TABLE I. CLASSIFICATION OF BENIGN TUMORS OF THE BREAST

A. *Mammary Dysplasia*
  Abnormalities in ovarian function
    1. Mastodynia
    2. Adenosis
    3. Cystic Disease
B. *Benign Neoplasia*
  True, benign tumor formation
    1. Benign Fibroadenoma
    2. Benign Intracystic Papilloma
      a. Papillary invagination of large ducts
      b. Intracystic papillomas
      c. Papillary hyperplasia
C. *Benign Nonindigenous Tumors*
  Lipomas, Angiomas, Leiomyomas,
  Dermoids, Sweat Gland Tumors

breasts. Estrogen causes the rapid growth and changes in the breast at puberty. There are continuous changes in the breast during the menstrual cycle. During the first half of the cycle, estrogen produces a gradual growth of glands. Progestin produces further change in the latter half of the cycle. Once pregnancy is established, progestin causes an increase in the growth of the glands with proliferation of lobule arrangement. Prolactin, a hormone of the anterior pituitary, reacts to produce actual secretion of milk. An understanding of the effect of these hormones will give an insight into the cause of many of the complaints referrable to the breast. Indeed, it is thought that many of the lesions of the breast are expressions of ovarian function.

Unanimity regarding the classifications of benign breast tumors is lacking. Clinicians and pathologists often use different classifications. Geschickter,[10] Copeland,[9] Bloodgood,[6] Cole[8] and others[4] have classified breast tumors. Copeland's classification, based on the work of Geschickter, seems to be a practical one (Table I).

Mammary Dysplasia

Mastodynia, or painful breast, is found most often in women between the ages of twenty and forty years. Married women suffer from this condition three times as frequently as unmarried women. The pain is usually gradual in onset over a period of months and becomes worse just before or during the menstrual period. It often occurs in women with small breasts and it may be present in one or both breasts. The breast tissue in the painful area becomes thicker and more granular than the surrounding breast tissue. At times the disease appears to be a precursor to cystic disease. If biopsied, this nonencapsulated, dense and fibrous tissue may contain small cysts. The normal lobule formation in the breast is dependent on the proper ratio of estrogen and luteal hormones. In mastodynia, it is thought that there is a relative lowering of the function of the corpus luteum or an excessive stimulation by the estrogenic hormones. Progesterone given twice a week for the last two weeks of two consecutive cycles seems to give the most relief to these patients who so often believe their painful breasts are due to more serious lesions.

Adenosis (Schimmelbusch's disease) of the breast is characterized by an increase in the fibrous tissue in the parenchyma which is riddled with minute adenomas, papillomas and dilated ducts. These lesions may be found in one or both breasts. The diseased areas are usually thickened and painful, and an edge can be palpated at the periphery of the diseased portion. The age group most commonly affected is from adolescence to forty-five years. Those who develop sexual maturity early with small breasts due to stunting from high estrogenic stimulation often suffer from adenosis of the breast. Also many women over thirty years of age with menstrual complaints often present themselves with symptoms suffered for a year or more. The multiple nodules, which are so often found, are thought to be due to hyperestrinism brought about by a low function of the corpus luteum. If these lesions are observed over a period of years about 2 per cent will become malignant. Estrogenic therapy has proved to be of no value and often makes the condition worse. Progesterone given between two or three menstrual periods has proven to give the most benefit in adenosis of the breast.

Cystic disease of the breast is a condition about which much controversy centers. The findings of extensive histological and clinical research by Warren,[30] Campbell,[7] Adair, Bloodgood[6] and others,[1,20] have differed as to whether these lesions should be considered as precancerous lesions. At the present time, it would appear that certain types of cystic disease are more prone to eventuate into neoplastic growths and it may be said that a patient with cystic disease of the breast will develop malignancy more often than the patient with normal breasts. Cystic disease occurs most often near the menopause. Symptoms often come on quickly over a period of a few days to a few weeks. It is frequently seen in childless women in their early forties, first having symptoms of a burning or sticking in their breasts even before a definite lump can be palpated. Multiple cysts are found in one or both breasts in about 25% of the cases. It is thought estrogenic stimulation results in the formation of the cysts. When these lesions are biopsied, often one or more cysts will be seen or a large single cyst which Bloodgood has described as "blue-domed cysts." Excision will cure the vast majority of these lesions, but a periodic vigilant follow-up should be carried out on all patients with cystic disease of the breast.

Fibro-adenoma are composed of fibrous and glandular tissue, their firmness depending on the predominence of either cellular element. They are found most frequently in young women who usually give a history of a painless mass that has been getting gradually larger over a period of a few months. Because of the difficulty in differentiating these benign lesions from early malignancy, excision should be caried out promptly. They are encapsulated and only in a small percentage of cases do they reappear. If they appear at the time of the menopause and go untreated, they often develop into large fibromyxomas or fibrosarcomas.

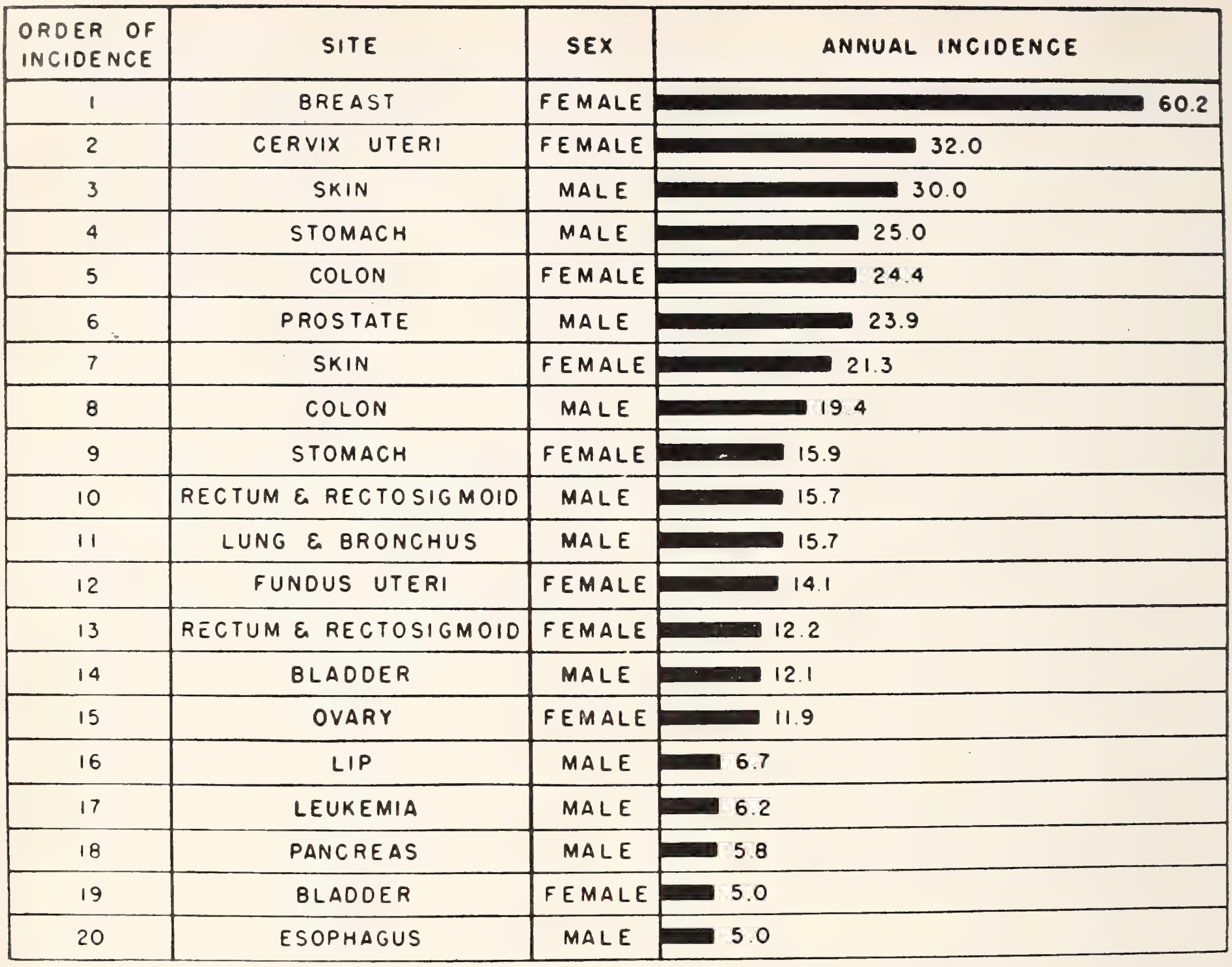
Benign intracystic papilloma occur most frequently in women near or beyond the menopause. They are found as often in nulliparous as in parous women and are due to a papillary invagination of the large ducts. At times the papillary growth may completely fill a cyst cavity. These lesions are usually slow growing and present themselves as a soft mass which is freely moveable and often encapsulated. They are most frequently found in the central zone of the breast and when compressed will present the significant symptom of bleeding from the nipple. Repeated attempts to locate the source of the bleeding is necessary, and when found excision is promptly carried out. Because of the bleeding, they usually command the attention of the physician to ascertain whether or not the bleeding might not be caused by Paget's Disease or other types of malignancy of the breast.[16] Campbell, Geschickter, Adair and others[11,16] found bleeding to occur about as often in malignancy as in benign lesions. If there are multiple sources of bleeding or when limited excision does not remove the entire bleeding process, simple mastectomy is indicated.

Benign nonindigenous tumors, such as lipoma, angiomas, leiomyoma, dermoids, should be removed as their presence invariably causes the patient to fear impending malignancy.

Malignant tumors of the breast.—Carcinoma comprises the overwhelming majority of neoplasms of the breast. Sarcoma and malignant myxomas are rare. In 6,558 patients with malignancy of the breast seen at the Mayo Clinic between 1910-1940, Harrington[17] found 99.4% to be carcinoma. Carcinoma of the breast is by far the most common malignant lesion in the female (Fig. 1). It is ten times more common in the female than in the male. Carcinoma is found simultaneously in both breasts in about 1% of the cases. About 5% of patients treated for carcinoma of the breast will later develop carcinoma in the remaining breast.

Little is known regarding the etiology of human breast carcinoma. Endocrines, heredity and previously existing cystic disease and benign tumors are known factors in the development of these neoplasms. Bittner's excellent work on the milk factors in mice has not been proven in the humans as yet, because the time factor involved in studying generations of human beings. Trauma to the breast often results in fat necrosis which clinically simulates carcinoma, but trauma, per se, has never been considered a great etiological factor.

Although many classifications of mammary carcinoma have been put forward, none are acceptable to clinicians and pathologists alike. Attempts at grading these tumors have met with acceptance in most quarters.[12,26,27] The type of cellular structures composing the tumor and the behavior of the tumor as regards metastasizing will give a rather accurate prognosis. For this reason, immediate biopsy of any suspicious lesion of the breast and a meticulous search for regional and distant metastasis should be undertaken. Various methods of biopsing lesions of the breast have proven to be accurate. The employment of aspiration biopsy by the Memorial Hospital group in New York[2] has given satisfactory results in their hands. By this method the type of cells present are determined, but it is impossible to obtain information regarding the relationship of various structural components in this procedure. Many men deprecate incising a wedge-shaped portion of the tumor for microscopic study because of the fear of spreading cancer cells into channels where they might rapidly disseminate. However, Haagensen believes no harm results if incision into the tumor is carefully done. Complete excision of the tumor, with a portion of surrounding normal breast tissue, has been a certain, accurate method that has given the surgeon ample opportunity to study the tumor grossly at the operating table. The correlation of the gross ap-



ORDER OF INCIDENCE	SITE	SEX	ANNUAL INCIDENCE
1	BREAST	FEMALE	60.2
2	CERVIX UTERI	FEMALE	32.0
3	SKIN	MALE	30.0
4	STOMACH	MALE	25.0
5	COLON	FEMALE	24.4
6	PROSTATE	MALE	23.9
7	SKIN	FEMALE	21.3
8	COLON	MALE	19.4
9	STOMACH	FEMALE	15.9
10	RECTUM & RECTOSIGMOID	MALE	15.7
11	LUNG & BRONCHUS	MALE	15.7
12	FUNDUS UTERI	FEMALE	14.1
13	RECTUM & RECTOSIGMOID	FEMALE	12.2
14	BLADDER	MALE	12.1
15	OVARY	FEMALE	11.9
16	LIP	MALE	6.7
17	LEUKEMIA	MALE	6.2
18	PANCREAS	MALE	5.8
19	BLADDER	FEMALE	5.0
20	ESOPHAGUS	MALE	5.0

ALL SITES FEMALE – 268.7 ALL SITES MALE – 233.4

Fig. 1. Average annual cancer incidence rates per 100,000 population, New York State, exclusive of New York City, 1942 to 1947.

pearance of the tumor, with the reported microscopic findings, will give the greatest information about the type of lesion present. Indeed, many men believe the gross appearance of the tumor will give more information than frozen microscopic sections of the tumor.[8] If there is doubt as to the type of pathology present, many sections should be studied from paraffin sections to arrive at a correct diagnosis. There is not much evidence that removal of a malignant tumor, with a wide margin of tissue, several days before radical operation exerts any deleterious effects.

Once a correct pathological diagnosis has been made and the extent of metastasis determined an attempt should be made to erradicate the cancer, if possible. If the disease process has spread to the skeleton, lungs or other distant points; if the skin over the breast is extensively involved; if there is edema of the arm, palliative treatment is recommended. If the cancer is confined to the breast and the adjacent axillary nodes an attempt should be made to remove completely the cancer by radical surgery. One should keep in mind, that as of today, radiation[5] and surgery[21,24] are the only proven methods of dealing with breast cancer. The literature[14,15,17,26] abounds with statistics regarding five-year survival rates for each method and for a combination of both. Most claims for each of the methods will be decided in the future.

Radiation, by means of radium needles, has been reported by Keynes[19] as being successfully used in treating cancer of the breast with axillary metastasis. McKittrick[22] in this country attempted to repeat Keyne's results, but has now abandoned this treatment in favor of radical surgery.

McWhirter of Edinburgh[23] has recently published some rather astonishing five-year survival rates, in which simple mastectomy was carried out for carcinoma of the breast with axillary metastasis, leaving the axillary nodes to be treated postoperatively with heavy doses of radiotherapy. He bases the rationale of this treatment on his belief that the axilla cannot be freed of all cancer with surgery. It is a well-known fact that radiotherapy can cause extensive fibrosis in which cancer cells are "locked up" for many years, but never thorougly destroyed. Time will disclose whether or not there is a place for this type of combination therapy in the treatment of cancer of the breast.

Simple mastectomy alone, unfortunately, is still done by some surgeons who have a defeatist attitude regarding this disease. By doing this limited surgical procedure the surgeon foregoes the opportunity for his patient to participate in the excellent five-year survival rate statistics that have come forth following radical mastectomy. About 60% of patients with cancer of the breast have axillary metastasis when first seen. These patients in which the disease is limited to the axilla should have a classical radical mastectomy in which sufficient time is taken to dissect out meticulously all nodes high in the axilla, supraclavicular space and other lymphatic pathways. The work of Halsted, Willy Meyer, Greenough,[28] Rodman and others layed the foundation as to what constitutes a radical mastectomy. By utilizing many of the facilities available today such as anesthesia, blood transfusions, antibiotics and others, the operability rate has been extended. Today, radical mastectomy, as advocated by Adair, Pack,[25] Haagensen, Cole and others, offers the patient with cancer of the breast a better chance for cure than ever before. More patients are given this chance as the operability rate now approaches 75%. A few surgeons have attempted more adventuresome surgery in which they have attempted to remove the nodes within the thorax, elevate the clavicle, and routinely do an extensive neck dissection. Their experience has been limited to very few cases and the benefits derived from these extensive procedures is still doubtful.

The value of preoperative and postoperative radiation[21] has been a debateable subject for years. At the present time, preoperative radiation has been dispensed with by most men, but postoperative radiation is still being used in an attempt to "lock up" in dense fibrous tissue any remaining cancer cells, and to prevent local recurrences over the operative site and axilla.

Radiation has a definite place in the treatment of metastasis. Its role here has definite value and should be started when the patient complains of pain which so often is the first symptom of bony metastasis. Radiation should be started even before the metastatic lesions are demonstrated by x-ray. Relief is often spectacular and often gives the patient months and sometimes years of comfort.

Attempts to influence the course of breast carcinoma by changing the hormone balance in the patient has been accomplished by doing routine castrations,[18,29] either by surgery or radiation, on all patients with breast carcinoma. This was first done because of the known rapid growth of carcinoma of the breast during pregnancy. It is the routine procedure in most clinics to give irradiation to the ovaries.

Hormonal therapy in the form of androgen and estrogen has been given a thorough trial in many clinics[13] during recent years. At the present time, it would seem to be a valuable supplemental type of treatment in treating metastasis. It often gives the patient a feeling of well being which at times extends over a period of months.[2] Androgen seems to be of greatest benefit to women under sixty years of age in which irradiation to painful bony metastasis no longer gives relief. Some rather startling results have been recorded when used in this manner. Estrogen gives most benefit to women over sixty years of age when the metastasis in soft tissue no longer can be controlled by radiation.

In conclusion, it should be stated that if women can be educated in self-examination of their breasts and present themselves early to their physician and receive adequate radical surgery, even better results will come forth in the future.

Bibliography

1. Ackerman, L. V., and Regato, J. A.: Cancer. St. Louis; C. V. Mosby Co., 1947.
2. Adair, F. E., and Herrmann, J. B.: The use of testosterone propionate in the treatment of advanced carcinoma of the breast. Ann. Surg., 123:1023-1035, 1946.
3. Adair, F. E.: Surgical problems in breast cancer. Post Grad. Med., 8:454-465 (Dec. 6) 1950.
4. Black, W.: Benign breast tumors. Medicine Illustrated, Baltimore, 4:531-536 (Nov.) 1950.
5. Bloodgood, J. C.: Permanent results of irradiation for inoperable cancer. Am. J. Surg., 28:490-497, 1935.
6. Bloodgood, J. C.: Biopsy of breast lesions. Ann. Surg., 102:239-249, 1935.
7. Campbell, O. J.: Relationship between cystic disease of the breast and carcinoma. Arch. Surg., 28:1001-1038, 1934.
8. Cole, W. H. and Rossiter, L. J.: Practice of Surgery., Hagerstown, Md.: W. F. Prior Co., 5:1-104, 1950.
9. Copeland, M.: New aspects of benign tumors of the breast. Arch. Surg., 55:590-606, 1947.
10. Copeland, M. M., and Geschickter, C. F.: Diagnosis

and treatment of premalignant lesions of the breast. Surg. Clin. North America, 30:1717-1741 (Dec.) 1950.

11. Eisen, M. J., and Taft, R. H.: Cytological diagnosis of mammary cancer associated with incipient Paget's disease of the nipple. Cancer, 4:150-153 (Jan.) 1951.
12. Ewing, J.: Classification of mammary cancer. Ann. Surg., 102:249-252, 1935.
13. Godwin, J. T., and Escher, G. C.: Hormone-treated primary operable breast carcinoma; a pathological study of thirty-three cases. Cancer, 4:136-140 (Jan.) 1951.
14. Greenough, R. B.: Early diagnosis of cancer of the breast. Ann. Surg., 102:233-238, 1935.
15. Haagensen, C. D., and Stout, A. P.: Carcinoma of the breast, Ann. Surg., 116:801-815, 1942.
16. Haagensen, C. D., and Stout, A. P.: The papillary neoplasm of the breast—benign intraductal papilloma. Ann. Surg., 133:18-36, 1951.
17. Haagensen, C. D.: Carcinoma of the breast. American Cancer Society, 1950.
18. Harrington, S. W.: Survival rates of radical maestectomy for unilateral and bilateral carcinoma of the breast. Surgery, 19:154-166, 1946.
19. Horseley, G. W.: Treatment of cancer of the breasts in premenopausal patients with radical amputation and bilateral oöphorectomy. Ann. Surg., 125: 703-717, 1947.
20. Keynes, G.: The place of radium in the treatment of cancer of the breast. Ann. Surg., 106:619-630, 1937.
21. Kranz, V. K.; Pickren, J. W.; Melcher, G. W., and Auchincloss, H.: Incidence of chronic cystic disease in so-called "normal breasts": A study based on 225 postmortem examinations. Cancer, 4:762-783 (July) 1951.
22. Lenz, M.: Tumor dosage and results of roentgen therapy of cancer of the breast. Am. J. Roent., 56: 67-74, 1946.
23. McKittrick, L. S.: Interstitial radiation of cancer of the breast: A review of ninety-six cases of cancer of the breast treated according to the technique of Goeffrey Keynes. Ann. Surg., 106:631-644, 1937.
24. McWhirter, R.: Treatment of cancer of the breast by simple mastectomy and roentgenotherapy. Arch. Surg., 59:830-842, 1949.
25. Marshall, S. F., and Hare, H. F.: Carcinoma of the breast; results of combined treatment with surgery and roentgen rays. Ann. Surg., 125:688-702, 1947.
26. Pack, G.: Personal communication.
27. Portmann, U. V.: Cancer of the breast; classification of cases, criteria of incurability and treatment, J.A.M.A., 144:513-516 (Oct.) 1950.
28. Sophian, L.: Histologic grading of mammary carcinoma in a series followed for ten years. Ann. Surg., 102:224-231, 1935.
29. Taylor, G. W., and Doland, E. M.: The Greenough technique of radical mastectomy. Surg., Gynec., & Obst., 65:807-811, 1937.
30. Treves, N.; Abel, J. C.; Woodard, H. Q., and Farrow, J. H.: The effects of orchidectomy on primary and metastatic carcinoma of the breast. Surg., Gynec., & Obst., 79:589-605, 1944.
31. Warren, S.: The relation of "chronic mastitis" to carcinoma of the breast. Surg., Gynec., & Obst., 71: 257-273, 1940.

THE USE OF METHANTHELINE BROMIDE (BANTHINE) IN PEPTIC ULCER AND OTHER GASTROINTESTINAL DISORDERS

(Continued from Page 640)

The maintenance dose must be adjusted to each individual case, remembering that night control is still of fundamental importance.

3. *The unnecessary use of Banthine.* In self-limited conditions such as the acute diarrheas and in irritable bowel cases in which the regulation of the patient's life and habits, his general hygiene and his diet is of more fundamental importance, Banthine is not needed.

4. *The use of Banthine in the face of obvious contraindications* such as those previously mentioned. Irreparable damage can at times be done in this way and it behooves us to survey each patient carefully for abnormalities which contraindicate its use.

Finally, it is only by the judicious use of Banthine that its value to our patients can be enhanced. This drug is still in its infancy. It is only by carefully evaluating its effect in each individual case that its ultimate place in therapeutics can be established.

References

1. Abbott, F. K.,; Mack, Marian, and Wolf, S.: The action of Banthine on the stomach and duodenum of man with observations on the effect of placebos. Gastroenterology, 20:2, 249, 1952.
2. Brown, C. H., and Collins, E. N.: The use of Banthine in the treatment of duodenal ulcer. Gastroenterology, 18:1, 26, 1951.
3. Grimson, K. S.: A clinical trial of Banthine in cases of peptic ulcer. Gastroenterology, 14:583, 1950.
4. Grimson, K. S.; Lyons, C. K., and Reeves, R. J.: Clinical trial of Banthine in 100 patients with peptic ulcer. J.A.M.A., 143:873 (July 8) 1950.
5. Kern, F., Jr.; Almy, T. P., and Stolle, N. J.: An experimental and preliminary clinical study of the effect of a new quaternary Amine-Banthine upon the human colon. Gastroenterology, 17:2, 198, 1951.
6. McHardy, G. G., Brown, D. C., Marek, F. H., McHardy, R., and Ward, S.: Clinical evaluation of Banthine in gastroenterology. J.A.M.A., 147:17, 1620 (Dec. 22) 1951.
7. Smith, C. A., Woodward, E. R., Jones, C. W., and Dragstedt, L. R.: The effect of Banthine on gastric secretion in man and experimental animals. Gastroenterology, 15:4, 718, 1950.
8. Winkelstein, A.: Banthine for peptic ulcer: clinical and physiological considerations. Gastroenterology, 20:3, 464, 1952.

INTERRELATIONSHIPS BETWEEN CARDIAC AND PULMONARY DISEASES

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BECAUSE of the close anatomic and physiologic relationship between the heart and the lungs, it is to be expected that disease of one organ will produce an effect upon the other, and that this may often lead to difficulties in diagnosis. Dyspnea is the commonest symptom in diseases of the heart and yet this symptom is pulmonary in origin. Diseases of the lungs may lead to right heart enlargement and failure and be confused with primary disease of the heart. If pitfalls in diagnosis are to be avoided, it is important to understand the changes in the lungs produced by heart disease, and, conversely, the effect of pulmonary disease upon the heart.

Heart disease produces changes in the lungs by alterations in the pulmonary vascular pressure. Under normal circumstances the pressure in the vessels of the lungs is low. The mean pressure in the pulmonary artery of a normal man is 15 mm. Hg and the capillary pressure 9 mm. Hg. Failure of the left ventricle associated with systemic arterial hypertension or aortic valve disease leads to a sudden rise in pulmonary vascular pressures. If the pulmonary capillary pressure exceeds the colloid osmotic pressure of the blood, pulmonary edema ensues. These changes in the lungs are responsible for the familiar symptom of dyspnea. The combination of dyspnea, cardiac enlargement together with the typical findings of pulmonary edema, usually makes the diagnosis simple. Occasionally the atypical nature of the pulmonary edema in the roentgenogram of the chest may lead to confusion in diagnosis. The edema may be confined to one area of the lung simulating pneumonia. This may be particularly confusing if cardiac enlargement is absent as may be true in myocardial infarction with associated left ventricular failure.

Mitral stenosis produces chronic pulmonary hypertension. This is to be expected as the interference with the flow of blood from the lungs into the heart is caused by a mechanical obstruction rather than to changes in the efficiency of the cardiac musculature. Acute attacks of pulmonary edema may occur as in left ventricular failure but more commonly a different clinical picture is seen. The patient will complain of chronic exertional dyspnea which is oftentimes associated with cough and hemoptysis. These patients will have marked elevation of the pressure in the pulmonary arteries. Microscopic sections of the lungs will show thickening of the alveolar septa and hemosiderin-filled macrophages in the alveoli. Because the murmur of mitral stenosis is readily overlooked, the symptoms are often wrongly attributed to bronchitis or bronchiectasis. The appearance of the roentgenogram of the chest may lead to confusion. There may be a reticular appearance to the lung simulating a fine pulmonary fibrosis or an appearance resembling miliary tuberculosis. This roentgenographic picture has been called hemosiderosis of the lungs.

An accumulation of fluid in the pleural cavities is a common accompaniment of congestive heart failure. The fluid is usually bilateral, although it may be more marked on the right. Occasionally marked unilateral hydrothorax occurs as a complication of heart failure. This may not be accompanied by peripheral edema. Under these circumstances, the pleural fluid may be falsely attributed to tuberculosis or bronchogenic carcinoma.

Dilatation of the pulmonary arteries is commonly seen with pulmonary hypertension complicating heart disease but is usually moderate in degree. With certain types of congenital heart disease the dilatation may be enormous. This is particularly true in auricular septal defect which is associated with a marked increase in pulmonary blood flow. Dilatation of the major trunks of the pulmonary artery may complicate pulmonic stenosis or may occasionally occur as an isolated anomaly.

Pulmonary infarction is a common complica-

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tion of congestive heart failure. It should be suspected whenever a patient with cardiac disease complains of chest pain or hemoptysis. At times the only clinical manifestation may be a worsening of the symptoms of heart failure. The roentgenographic picture of pulmonary infarction is often confused with or obscured by pulmonary edema and hydrothorax.

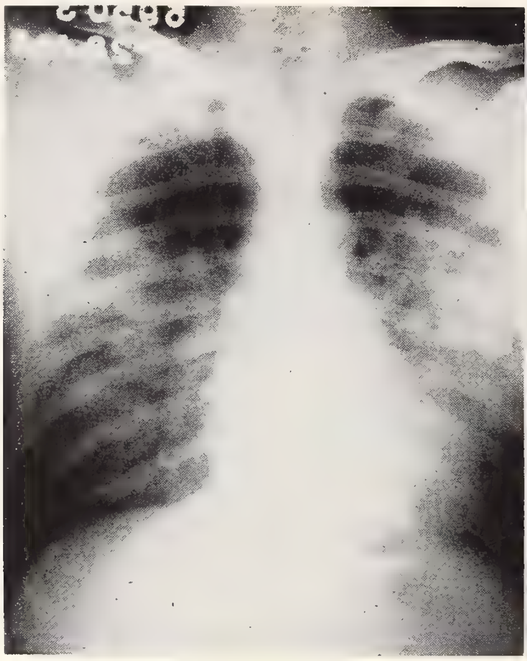
Fig. 1. Hypertensive heart disease with pulmonary edema.

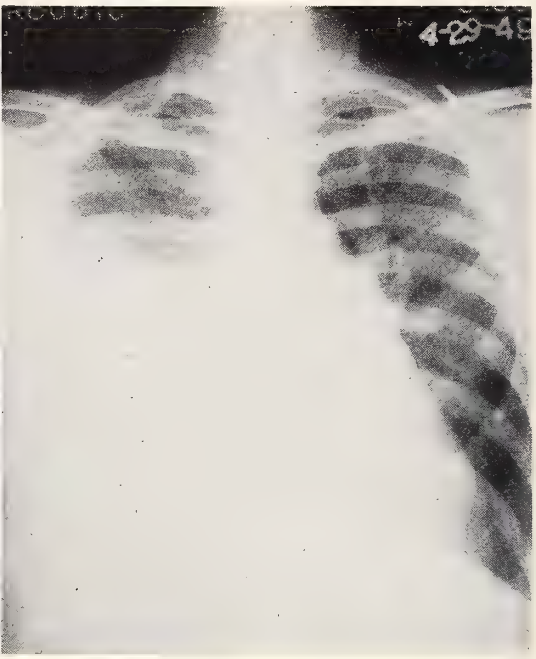

Fig. 2. Mitral stenosis with unilateral hydrothorax.

Localized diseases of the lung such as pulmonary tuberculosis, lung abscess, bronchogenic carcinoma or bronchiectasis produce little effect on the heart. This is because these diseases produce no elevation of pulmonary arterial pressure. On the other hand diffuse diseases of the lung such as pulmonary emphysema and diffuse pulmonary fibrosis commonly lead to pulmonary hypertension, right heart enlargement and right heart failure.

Pulmonary emphysema is the most common disease of the lungs which leads to right heart enlargement and failure. It is of particular importance because of the frequency with which it is confused with primary disease of the heart. Dyspnea is the most prominent symptom. At first the dyspnea occurs on exertion but later dyspnea may be present at rest particularly when bronchial infection is present. The dyspnea is in no way related to involvement of the heart but rather is caused by the disease process in the lungs. As a result of the loss of the normal elastic forces of the lungs the residual air is markedly increased with a corresponding reduction in vital capacity. In addition there is obstruction to flow of air in and out of the lungs as a result of the alteration in architecture of the lungs and the associated bronchial infection. In the latter stage of the disease there is marked interference with ventilation of the alveoli resulting in anoxia and retention of carbon dioxide. This interference with the respiratory function of the lungs is the eventual cause of death.

The development of pulmonary hypertension in emphysema is variable. Almost all patients with severe emphysema will have some elevation in pulmonary arterial pressure, but severe pulmonaary hypertension occurs in a minority. Marked pulmonary hypertension occurs most commonly in those patients with severe anoxia and there is reason to believe that the anoxia may play a part in the production of the pulmonary hypertension.

Evidence of right heart enlargement is best obtained from the electrocardiogram although caution must be exercised in interpretation because of the positional changes which are commonly present. Evidence of gross cardiac enlargement on the roentgenogram of the chest is usually absent except in the presence of marked right ventricular failure. The circulation time is usually normal even in the presence of right heart failure. This is because the cardiac output is normal or even increased.

The diagnosis of right heart failure in patients with emphysema is often frought with difficulty and uncertainty. As mentioned previously dyspnea and cyanosis are symptoms of the pulmonary disease and are in no way related to heart failure. Edema of the lower extremities is commonly seen in pulmonary emphysema. The edema does not always seem to be related to cardiac failure. Often it results from prolonged dependency of the legs. Because of the severe dyspnea the patients may remain in a chair with the legs dependent day and night. Under these circumstances one would expect some edema of the legs. The size of the liver is often difficult to evaluate because of the low diaphragms and this further complicates the diagnosis of right heart failure. The most reliable criterion of right heart failure would appear to be a definite elevation of the venous pressure.

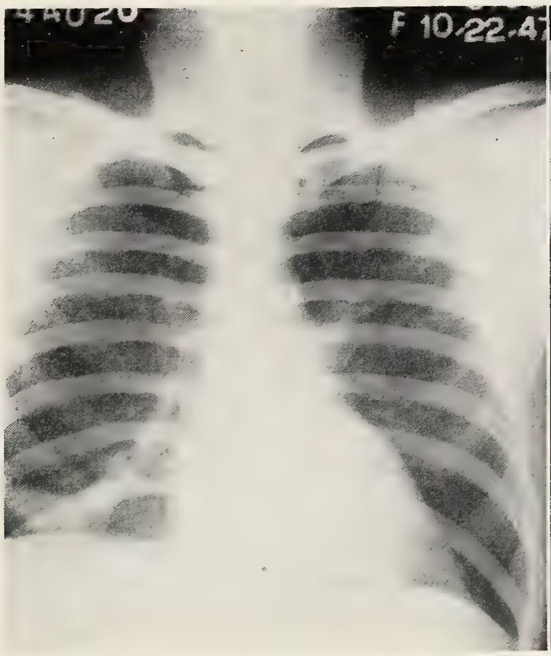

Fig. 3. Pulmonary infarction complicating congestive heart failure.

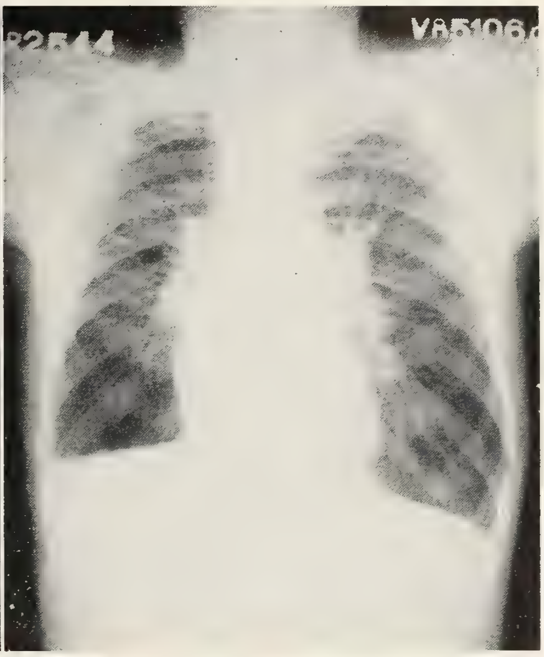

Fig. 4. Severe pulmonary emphysema with cor pulmonale.

In the differential diagnosis of primary cardiac and primary pulmonary disease symptoms are of little value. Exertional dyspnea, nocturnal dyspnea, orthopnea, and edema may occur in both. Physical findings are of greater aid. Severe cyanosis should always suggest primary disease of the lungs or congenital heart disease with a right to left shunt. A barrel chest with limited motion and low diaphragms is usually found in pulmonary emphysema. The determination of cardiac enlargement on physical examination is of great aid. If the heart can be determined to be markedly enlarged by palpation of the apex impulse or percussion it is safe to ascribe the symptoms to primary heart failure. On the other hand if the apex impulse cannot be felt and cardiac enlargement cannot be detected by percussion one should strongly consider the possibility of the symptoms being on the basis of pulmonary disease. The roentgenograms of the chest must be interpreted with caution. In silicosis or sarcoid with extensive pulmonary fibrosis the disease of the lungs is obvious, but pulmonary emphysema may be difficult or impossible to diagnose from the roentgenogram. The size of the heart is of aid, as marked cardiac enlargement does not usually occur with pulmonary emphysema even in the presence of cor pulmonale. If cardiac enlargement is present it is right ventricular in type. The electrocardiogram is useful in that there is evidence of right ventricular enlargement in cor pulmonale whereas most types of acquired heart disease except mitral stenosis show evidence of left ventricular enlargement.

Finally, mention should be made of the use of the measurement of vital capacity in diagnosis. This is an extremely simple procedure which can be performed with an inexpensive portable apparatus.* In congestive heart failure the vital capacity is moderately reduced but extreme reduction is uncommon unless marked pulmonary edema or hydrothorax is present. Moreover in performing the vital capacity the patient can expel the air with moderate rapidity. In severe pulmonary emphysema with cor pulmonale the

(Continued on Page 702)

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*Manufactured by the McKesson Appliance Company, Toledo, Ohio.

History of Medicine In Minnesota

NOTES ON THE HISTORY OF MEDICINE IN WASECA COUNTY PRIOR TO 1901

B. J. GALLAGHER, M.D., and J. F. LYNN, M.D.

(Continued from the June issue)

Homer P. Dredge was born in Pleasant Mound Township, Blue Earth county, Minnesota, on August 3, 1870. He graduated from Rush Medical College, Chicago, in 1896. He located in Janesville, Waseca County, in June of 1896 and was there one year. Then he located at Bellview, Redwood County, where he remained until September, 1903, when he moved to Sandstone, Minnesota, where he still is in practice (1952).

He was married at Duluth to Miss Elma H. Freeman. Six children were born of this union, and all are living now in 1952. They are: Ethel Freeman Dredge, Librarian, Minneapolis; Florence Isabel Dredge, now the wife of Judge Earl J. Lyons, Minneapolis; Lieutenant Colonel Thomas Everett Dredge, M.D., at present on service with the army in Korea; Alice Hazel Dredge, now Mrs. Paul R. Wylie of Montana; Homer P. Dredge, a graduate of pharmacy from the University of Minnesota, and owner of a drug store at Waverly, Minnesota; Robert Morris Dredge, an employe of the National Cash Register Company and now living in Richfield, Minnesota. Dr. and Mrs. Dredge have twelve grandchildren.

M. S. Gove, the first actively practicing physician in Waseca County, was born in the town of Strafford, Orange County, Vermont, in 1829. He studied medicine in his native state, graduating in 1849. He then came west to Indiana, where he practiced until 1858, when he came to Minnesota, taking up his residence in Wilton, then the county seat of the one-year-old county. He was a public spirited man and took a great interest in all public matters. In 1859, he was elected County Commissioner, and became Chairman of the Board at its first meeting after the election. At one time, he was County Superintendent of Schools. When the Waseca County Anti-Horse-Thief Society was organized in 1864, he was its first President, and was very active in it until his death ten years later. The organization is still in existence in the county and has members down through the fourth generation. After his death, the Society resolved:

> "That we will ever cherish his memory with feelings of consideration and respect as a man of scholarship and ability in his chosen profession, a kind neighbor and a good citizen."

His professional cards appeared in the first and all the subsequent issues of the *Waseca Citizen,* which was started in Wilton, in 1860. They seem rather modest, in view of the fact that so far as is known, he was the only regular physician in the county at the time:

M. S. Gove, M.D.
Physician, Surgeon and Obstetrician
Office Broadway, next door west, Wilton House
Wilton, Minnesota
Conversant for 14 years with disease experience in hospitals and 10 years extensive practice in the west, may entitle him to a portion of the patronage.

Since he was asking for a "portion of the patronage" it would seem that he must have had competition of some kind.

He married Miss Sarah Dodge, then a teacher in the public schools of the county. They had no children.

When the town of Waseca started in the fall of 1867, after the arrival of the railroad and a movement was on soon to move the county seat to Waseca, Dr. Gove fought for its retention in Wilton. When Waseca became the county seat at the election of 1869 and Wilton was left high and dry, five miles from the railroad, he surrendered to the inevitable and moved to Waseca in 1870.

Late in November, 1874, he contracted an infection in one hand in the line of professional duty and died a few days later, on December 1, 1874. He is buried in a lonely and isolated cemetery about one-half mile south of the old Wilton Townsite.

Frank Winston Greene was born in Baltimore, Maryland, on October 5, 1853. Later his parents moved to Boston, where he grew up and went to a physicians and surgeons preparatory school, and later came to Minnesota, where he graduated from the Minnesota College Hospital in 1887. He received his Minnesota license on March 12, 1887 (1319R). At first he located in Minneapolis but in 1890 he is listed as practicing in Benson, Swift County, Minnesota, and in 1893 at Langford, South Dakota. In 1894 he came to New Richland, Waseca County, and there he lived until 1904. When Dr. Charles Dolan of Waterville moved to Worthington (after the sudden death of his brother, Dr. Edward Dolan, who had been in practice there), Dr. Greene moved to Waterville, Le Sueur County. He remained there until 1909 or 1910, when he moved to Seneca, South Dakota. In 1912, he moved to Bruno, Minnesota, and died there on April 17, 1934. He was buried at Waterville.

In 1887, he married Miss Katherine Rourke. They had two children, a son Winston D., born in 1896 and who died in 1905 at Waterville, and a daughter, born in 1904 at Waterville. She is now Mrs. O. E. Eklund, wife of the president of the State Bank of Bruno, Minnesota. They have one son, age 19 years, who is a student at Hamline University. Mrs. Greene died in Bruno in 1941 and is buried at Waterville, Minnesota.

David W. Horning filed his certificate (dated January 28, 1884) in Waseca, April 5, 1884. We have been unable to learn anything further about him here, but the Wabasha County notes in the November, 1944, issue of MINNESOTA MEDICINE, state that:

> "He graduated from the Homeopathic Medical School of Chicago in 1883. He practiced in Lake City until 1891, when he moved to Minneapolis."

He practiced in Waseca only for a year or two in 1884 and 1885, before moving to Lake City, and later in 1891 to Minneapolis. Nothing further is known about him.

William E. Hubbard, a physician of the regular school, was graduated at Rush Medical College in 1885. He received his license in Minnesota on October 27, 1885. His name is on the list as being located in Waseca about 1890, and he is remembered by at least one old-timer. He seems not to have registered his certificate with the Clerk of Court. He probably was not in Waseca for very long, and nothing further is known about him.

Eugene Hubbel, a homeopath, was graduated from the Hahnemann Medical College in 1883 and received his Minnesota license on September 18, 1884. He was located at Clearwater, in Wright County, for several years. In March, 1889, he moved to Waseca where he practiced for about a year. An old timer who remembers him, recalls that he made his calls on a high-wheeled bicycle. From 1893 until at least 1902, and probably for many years after that, he practiced at Saint Paul. He died in one of the Twin Cities only a few years ago.

Frederick N. Hunt is listed in the Clerk of Court's office in Waseca as having filed his certificate dated April 8, 1884, on June 10, 1892. He is listed in *Child's History* in 1893, as being one of the stockholders and the first cashier of the newly organized Citizens State Bank (now the First National). A personal communication from his son states that he went to Waseca from Fairmont for a year in 1892-1893, to help his uncle start a bank, that he did not practice in Waseca but went to Blue Earth in 1893, where he practiced until 1914, and then went to Fairmont. He is written up at length in the "History of Medicine in Martin County," MINNESOTA MEDICINE, October, 1942.

M. V. Hunt was one of the leading physicians of Waseca for many years. He was born in Darke County, Ohio, in 1848. He received his early education in Anderson, Indiana, where his parents moved when he was a child. He pursued his studies in Earlham College at Richmond, Indiana, where he graduated in 1867. He then matriculated at the Medical College of Cincinnati, Ohio, graduated March 4, 1872, and commenced practice at Anderson, Indiana. After a few months there, he removed to Janesville, Minnesota, and eighteen months later came to the city of Waseca. In the fall of 1879, he was elected County Superintendent of Schools, and he also served as County Coroner. He was a man of great natural ability, heightened by a superior education. In March, 1876, he married Miss Addie A. Andrews who died in July, 1887, leaving one child. He practiced in Waseca until about 1888, when he moved back to Anderson, Indiana. The date of his death is not known to us.

Attila M. Hutchinson, a homeopathic physician, was born in LeRoy, Gennessee County, New York, in 1847. When he was five years old his family moved to Fond Du Lac, Wisconsin, and there he was reared. He began the study of medicine at an early age, having a natural bent in that direction. Later he attended the Hahnemann Medical College, Chicago, where he graduated in 1877. He came to Waseca in April, 1885. While attending college, it is a matter of record that he took the first prizes on the "Theory of Practice of Medicine," and on "Diseases of the Heart and Lungs." In 1872, he married Miss Libby P. Otis of Wisconsin. They were the parents of five children. He was a member of the Minnesota Homeopathic Institute and also of the Ancient Free and Accepted Masons. He was in Waseca for a few years but it is not known just when he left or where he went.

L. E. Kuchenbecker, whose Minnesota license was dated October 12, 1893, filed it in Waseca July 7, 1900. We have been unable to find his name on any other list. Dr. J. F. Lynn, who came to Waseca in the fall of 1900 and is still practicing, does not know of him.

William A. Lang—the Freeborn County notes in the February, 1949, issue of MINNESOTA MEDICINE had this brief note only:

> "Dr. Lang located in Hartland (in Freeborn County, three or four miles south of the Waseca County line) in 1890. In 1891, he moved to New Richland (Waseca County) but came to Hartland every Thursday."

In *Child's History* of Waseca for the year 1886 it is stated that Dr. W. A. Lang was appointed County Physician for the Fourth District, so he must have been in New Richland at that time. Also in a public Medical Directory for 1886, 1890 and 1893, he is listed as a physician in Waseca County. He was a physician of the regular school and graduated from McGill University Medical Department at Montreal in 1881. It is thought that he left New Richland in the late 1890's. An edition of the *New Richland Star* in 1886 has this note:

> "Dr. W. A. Lang, graduate of a Montreal Medical College, located here about two years since, has by his skillfulness in his profession and his careful attention to the minor complaints, secured a firm hold upon the confidence of our citizens, and has a reputation second to none."

Nothing more is known about him.

James B. Lewis was born in Lancaster, Pennsylvania, December 18, 1855. Later the family moved to Reading, Pennsylvania. He graduated from the Medical Department of the University of Pennsylvania in 1878. He came to Minnesota in 1885, and was licensed on November 7, 1885 (1123R). He located in Saint Paul, and on June 16, 1886, he married Miss Lily B. Lienau of Saint Paul. They had a son and a daughter, both living in South Saint Paul at the time of this writing (1952). The daughter, Marguerite (Mrs. S. B. Ferguson) is Executive Secretary of Family Service of South Saint Paul; the son, Charles S. Lewis, is retired.

In 1894, the Lewis family moved to Waseca, where Dr. Lewis practiced until 1900. Then he moved to St. James, where he remained until 1910, when he located in South Saint Paul. After that he was Coroner of Dakota County for three terms.

The later years of his life were spent in semi-retirement. He traveled a great deal. He was an ardent sportsman, doing much hunting, but as he grew older gave that up for the milder sport of fishing. On July 27, 1924, he died in his sleep while on a fishing trip on Whitefish Lake, Jenkins, Minnesota. He was buried in Acacia Park Cemetery, Mendota. He was a member of the Episcopal Church, the Masons, and the Ramsey County, Minnesota State and American Medical Associations.

James F. Lynn was born in Loudoun County, Virginia, April 20, 1871. He received his primary education in the country schools, three miles from his home. He went then to William and Mary College at Williamsburg, Virginia, after which he taught a country school for two years. He then took academic courses at the Richmond College, preliminary to pursuing the study of medicine at the University College of Medicine, Richmond, where he finished with distinction in 1896. Later he continued his medical studies in New York at the New York Polyclinic and Hospital where he received advanced degrees. He practiced medicine in

Richmond for two years, at the same time acting as demonstrator of anatomy at the University College of Medicine.

He came to Waseca in August, 1900, and established the practice of medicine, which he is carrying on at the present time (1952).

Several years ago, a friend wrote the following tribute to Dr. Lynn:

> "Dr. Lynn is steadfast and loyal, having the confidence of businessmen, laboring men and farmers. He has been a success and a leader in his profession. As a physician, he has been a leader in health work in his community. He has been president of the Waseca County Medical Society at different times. In May, 1917, President Wilson appointed him medical member of the Waseca County Draft Board. These duties he faithfully performed at a great sacrifice to his medical practice. This work he continued for over a year, until the need for doctors in the Overseas American Army became so great that he resigned and enlisted. He was immediately appointed Captain in the Medical Corps, and after a brief training in the United States, he was sent overseas to France. There he served as Chief of the Medical Service with Base Hospital 107 A.E.F., until his return to the United States in June, 1919. He was released from the army with a honorable discharge July, 1919.
>
> He helped to organize and was one of the charter members of the Waseca American Legion Post. In 1922 and also in 1928, he was the Democratic nominee for Congress in the First Minnesota District. In both campaigns he put up a courageous, militant fight, and while not elected (this district being a stronghold of the Republicans) he made a creditable showing, each time receiving more votes for that office than any other Democrat had ever done before or since. All this was done at a great personal sacrifice. It cost him a lot of money and he lost a lot of time from his business. He was one of the twenty-one Minnesota delegates elected to the Constitutional Convention for the repeal of the 18th Amendment. He was Chairman of the Roosevelt Business and Professional League for Waseca County; Chairman of the Roosevelt and Garner Club for the city of Waseca; and Chairman of the Waseca County Democratic Committee for two years. He has also served as a member of the Waseca School Board and Chairman of the Waseca Charter Commission. These are not all the things he has engaged in for the good of the community, the State and the Nation, but it is sufficient to give you at least in part the picture of the kind of man he is."

The Genealogy of James F. Lynn, M.D.

Great, Great Grandfather, John Lynn	born 1729
Great Grandfather, Fielding Lynn	born 1763 died 1794
Great Grandmother, Ruth Fristoe Lynn	born 1772 died 1833
Grandfather, James Fristoe Lynn	born 1806 died 1864
Father, Bushrod Washington Lynn	born 1842 died 1917
Mother, Frances Allen Lynn	born 1844 died 1908
Dr. James Fristoe Lynn	born 1871

He married Miss Jessie Helms on January 28, 1904, and they have two sons. James F. is married, lives in Owatonna, and has three children. Robert Lee is married, lives in Saint Paul, and has two children.

Dr. Lynn's hobbies are riding horses and photography. He is still City Health Officer for Waseca (1952).

(To be Continued in the August issue)

President's Letter

PUBLIC HEALTH—MEDICINE'S EXTRA EYE

Just as many mothers sometimes need three arms to accomplish all their duties, so medicine needs an extra "eye" to keep watch over the health of the nation's people. The field of public health has long offered that extra "eye" for doctors of medicine.

The benefits from action in the interest of public health have been of extreme value to the medical profession as well as the public. Doctors of Minnesota will again have an opportunity to avail themselves of latest scientific developments in public health this October, when the sixth annual Minnesota Public Health Conference will convene. The dates are October 2 and 3, and the place is the Saint Paul Hotel.

Anyone who has attended the previous conferences, knows from first-hand experience, that their opportunities are many and varied.

The Minnesota Public Health Conference, an official affiliate of the American Public Health Association, provides a forum for the discussion of vital public health problems. It brings together representatives of medicine, nursing, dentistry, pharmacy, engineering, and veterinary medicine. The continuing co-operation and participation of these groups have helped make the conference an extraordinarily successful means of pin-pointing problems and emerging with machinery to resolve them.

A resolution promising the medical profession's aid and support in this conference was passed at the 1951 House of Delegates' meeting. Thus, we have a vital stake in the public health conference, not only through the working organizational committees, House of Delegates, officers and Council of the Minnesota State Medical Association, but through the individual physicians of the state as well.

I should like to urge physicians of Minnesota to do their part in keeping that extra "eye"—public health—an alert one. Its sharpness depends greatly on participation and co-operation from the medical profession. The Minnesota Public Health Conference should be a "must" on the calendar of all public-minded doctors. It will be concrete evidence of your continuing efforts to improve the already high health standards for the people of your state and nation.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

DIRTY POLITICS—H.R. 7800

IT seems worthwhile to relate the sequence of events that led up to the defeat by Congress of the bill designated as H.R. 7800. The story is an example of tricks that are played to get bills passed without due deliberation—bills which, if passed, would give added power to the powers that be and, if defeated, would afford an opportunity to discredit the opposition. This can be correctly termed—dirty politics.

A bill to amend Title II of the Social Security Act was introduced in Congress on Monday, May 12, 1952, and referred to the House Committee on Ways and Means. Printed copies of the bill were not available until Wednesday, May 14. The bill was considered immediately by the committee and reported favorably on Friday, May 16, without public hearings and with the request that action be taken on Monday, May 19, under suspension of rules. This meant that debate was to be limited to forty minutes and no amendments were to be allowed. Such undue haste should have been enough to have aroused suspicion and investigation. It did.

The bill provided for an increase in old age and survivors pensions. However, Section 3 of the bill provided that the Federal Security Administrator (Oscar Ewing at the present writing) should: (1) provide by regulation when and where physical examinations should be taken; (2) be authorized to prescribe the examining physician or agency; and (3) establish the fees. Quite an addition to the considerable authority already invested in the Federal Security Administrator.

While the bill did not establish permanent and total disability benefits, it established a precedent and framework for the adopting of such benefits in the future. In view of this dangerous precedent and the immediate control which Section 3 of the bill would vest in the Federal Security Administrator, the AMA opposed its adoption.

The AMA did not object to the portion of the bill which provided for an increase in Social Security payments, but it did object to Section 3 which would have put the government's foot in the door of socialized medicine.

The facts indicate that a sneak procedure was used by the Social Security Agency to get Section 3 "written in" an otherwise acceptable bill.

The AMA was taken to task by President Truman for having defeated the bill which would have increased payments in Old Age and Survivors Insurance benefits. This was probably true, for when the undesirability of Section 3 was called to the attention of Congress, the bill failed to pass by a two-thirds majority required under the suspension of rules.

Unless the story of bill 7800 is known, the opposition of the AMA might well put the physicians of the country in an unfavorable light in the eyes of Old Age and Survival beneficiaries. A statement by the AMA secretary let it be known that the AMA would not oppose a bill providing in a straight-forward way for an increase in payment to Social Security beneficiaries with no trick riders. The same bill was resubmitted and passed by the House with only twenty-two adverse votes. The bill is still opposed by the AMA, and it is to be hoped will be killed in the Senate.

STATE MEDICAL ASSESSMENT

THE House of Delegates at its meeting May 26, 1952, during the annual meeting of the Minnesota State Medical Association, voted to assess each active member $10 for the year 1952, effective immediately.

The association has been calling upon its reserves since 1949, in larger amounts each year, so that it has little reserve left. The dues have not been sufficient for the needs incident to the expanded field of activities. Provision for scholarships of $1,000 a year for medical students from communities of less than 5,000 population will soon add $4,000 yearly to the association's expenditures. Inflation has practically doubled the office salary item. An important factor in the picture is the reduction in membership from 3,100 as of January 1, 1950, to about 2,600 as of May 1, 1952, due to many physicians taking advantage of the non-dues paying life membership and the large number temporarily serving in the armed forces.

A letter from the state office which has gone out to each member calls attention to the fact that the new assessment of $10 added to the present $30 is still less than the dues of $50 paid in Iowa, Nebraska, North and South Dakota and the $60 paid in Wisconsin.

The assessment is payable at once directly to the Minnesota State Medical Association office at 496 Lowry Medical Arts Building, Saint Paul 2, Minnesota.

TREATMENT OF RHEUMATIC FEVER

Much has appeared in the literature regarding the use of ACTH and cortisone in the treatment of rheumatic fever. Editorial mention* has been made of the apparent prompt abatement of the symptoms and laboratory evidence of activity of the disease following the use of these two drugs but that their affect on the over-all picture of the heart disease frequently accompanying the disease had yet to be proved. A warning was issued against the indiscriminate use of the two drugs.

The question of practical importance as to whether ACTH and/or cortisone should replace the salicylates in the treatment of rheumatic fever has apparently not yet been settled. According to a recent release of the American Heart Association the remedies mentioned have been and are being studied in some thirteen research centers in the United States, Canada and Great Britain in a co-operative effort to evaluate the new drugs in comparison with the salicylates. Funds for the study have been supplied by the National Heart Institute of the U. S. Public Health Service, the British Research Council, the American Heart Association, the Canadian Arthritis and Rheumatism Society and various hospitals and medical centers. The ACTH has been supplied by Armour and Company and cortisone by Merck and Company.

The study has been going on since January, 1951, and the preliminary report on the first 302 of the 658 patients studied states that there is no difference in the time required for the acute symptoms to subside after the administration of ACTH, cortisone or aspirin and no conclusions are so far justified as to the drug most effective for the control of the acute illness. No information is yet available on the comparative effectiveness of the three drugs in preventing chronic heart disease.

Until some proof is forthcoming that ACTH or cortisone are superior to the salicylates in the treatment of rheumatic fever and until their side effects are better understood, the practitioner would seem justified in adhering to the salicylates for the treatment of this disease and leaving further trial of ACTH and cortisone to the research centers.

DR. LAWRENCE RETIRES

A testimonial dinner was given Dr. Joseph S. Lawrence, retiring head of the legislative office of the AMA in Washington, on Sunday, June 8, at the Palmer House in Chicago. Some 200 officers of the AMA and state medical associations attended the dinner in honor of the physician who for the past eight years has held a difficult assignment and has conducted it in a dignified and effective manner. Starting with an office consisting of one room and one employe, it now has a personnel of sixteen.

Dr. Lawrence had a background of twenty years of legislative experience in New York State as a representative in Albany of the State Medical Association. His office in Washington was first under the Committee of Public Education of the AMA. Later it became directly responsible to the Board of Trustees before being placed under the Committee on Legislation, headed first by Dr. Dwight Murray and now by Dr. Blasengame of Texas.

The AMA office in Washington has been accused of being a doctors' lobby. As a matter of fact, the office is a two-way information bureau, supplying information on legislative matter to the profession throughout the country and medical viewpoints to anyone in Washington who requests them. The office is in no sense a lobby. According to Dr. Lawrence's own statement, he has never asked any legislator to vote for or against any measure.

Dr. Lawrence deserves the thanks of the profession for having handled a difficult assignment well.

Physicians can stimulate community participation in X-ray surveys by setting a good example themselves. It would be gratifying if every hospital required that staff members have a chest X-ray, at least twice a year. The Children's Memorial Hospital is the first Chicago hospital to make such staff requirement. This example should be followed voluntarily by every hospital in the country. Edward A. Piszczek, M.D., *The Illinois Med. J.*, March, 1952.

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*Editorial: The need for early diagnosis in rheumatic fever. Minnesota Med., 34:164 (Feb.) 1951.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

FINAL APPROVAL GIVEN SCHOLARSHIP PLAN

A working plan for administering the Minnesota State Medical Association's Rural Medical scholarship fund was given final approval at the annual meeting in Minneapolis in May. The plan, main purpose of which is to assure at least one rural practicing physician a year to areas of Minnesota, was discussed and approved by the House of Delegates.

A special committee appointed to work out details of the plan of operation reported to the House of Delegates. In presenting a brief outline of the plan, the report stated:

> "The scholarship will consist of a grant of one thousand ($1000) dollars a year for four years during the time that the recipient is actually enrolled in the Medical School of the University of Minnesota. The proposal is to grant one additional scholarship to a beginning medical school student each year until four have been awarded, so that the maximum cost of the scholarships will be four thousand ($4000) dollars the fourth year and each year thereafter."

Stipulate Conditions

In order to assure that a doctor will be provided for a rural area in the state, the plan sets up certain conditions which must be agreed upon by the scholarship recipient: "The recipient, as a condition to being awarded the scholarship, must agree, at that time, that upon the successful completion of his medical education, including an internship of not exceeding two years and licensure in the State of Minnesota, to engage full time in general practice in a town of 5,000 population, or less, for a period of not less than five years. Failure upon the part of the recipient of the scholarship to do so, will make it necessary for the student to return to the scholarship fund of the Minnesota State Medical Association, the same percentage of the total grant as is represented by the uncompleted portion of the five-year period, together with interest thereon at a modest rate. For example, if the doctor serves only two years of the five-year period, he must return three-fifths of the total amount awarded him from the scholarship fund. Upon the completion of the five-year period the doctor is discharged from any indebtedness to the fund."

Plan of Selection Outlined

Certain basic requirements for the selection of medical students to receive the grant were outlined for the House by the committee. Responsibility for selection is vested in the Rural Medical Scholarship Selection committee, with advice and assistance from the University Relations committee, the Dean of the Medical School and members of the Council and such others as may be called upon by the committee. The report states:

> "(3) Among the basic requirements that will serve as a guide for this committee in awarding such scholarships will be:
>
> (a) The character of the individual.
>
> (b) The true desire of such person to study medicine and to become a practitioner of medicine.
>
> (c) Residence in a rural area or a town of less than 5,000 population, in Minnesota.
>
> (d) Willingness of student to engage in general practice for not less than five years in a town of the student's selection; the selection, however, to be made from a list to be prepared by this committee after consultation with various interested groups and individuals as the committee may determine or be directed by the Council."

Good Results Anticipated

It is hoped that final details of the plan can be completed so the committee can choose the first recipient of the scholarship for the fall quarter of 1952. The committee report emphasized that "while the plan partakes of the nature of a loan, it is an outright grant of the award to the recipient when the recipient has complied with his part of the agreement."

In avoiding hazards encountered by other states in granting scholarship awards, the committee felt that the ultimate good to be realized far outshines the somewhat cautious start the plan is undergoing. The long-range results are stated by the committee thusly: "Unlimited good to everyone concerned, including the public generally, recipients of the scholarship, and the medical profession, can result from this project."

AMA PRESIDENT LAUDS HIGH STANDARDS

Praising the American Medical Association's long fight to establish high medical standards and constantly to improve upon them, Dr. Louis H. Bauer, new president of the AMA, paid tribute to those efforts with these words in his inaugural address: "During the entire history of the American Medical Association, with just one exception, there has been no major Federal health law enacted that was not either sponsored or supported by the Association."

Dr. Bauer outlined a brief history of the association's efforts, through its committees and councils, for attainment of high standards for foods, nutrition, cosmetics, apparatus and industrial health, and other scientific areas.

In the field of medical education Dr. Bauer said, "The Association first came under heavy fire nearly a half century ago, when it began its campaign to raise the standards of medical education in this country. Medical education was at a low ebb, and it was imperative that the low grade medical schools and diploma mills existing at that time be eliminated. The campaign was successful and today we have only high grade schools of medicine in the United States. One dramatic proof of this campaign's success lies in the fact that today this country is the Mecca for medical training. Nowhere in the world is the level of medical education higher. Nowhere in the world is there a higher standard of medical care."

Stating that the AMA has more recently been equally vigilant in developments in the socio-economic fields related to medicine, Dr. Bauer felt that critics had been unjust in denying the Association's right to strive for improvements in that field as well:

> "Now, the association is told that its scientific activities are all right, but its socio-economic policies are all wrong. Twenty years ago we were criticized because we dared to question some of the developing health insurance plans. What was overlooked, of course, was the fact that no criteria had been established at that time by which to assess such insurance, and that little reliable information about it was then available. A year later we recommended experimentation in that field, and listed safeguards to be included in plans for the protection of patients. As a result, Voluntary Health Insurance has become the fastest growing insurance project in history, and is providing a sound means for prepayment of the major costs of illness. Yet, now we are vilified because we do support it and because we continue to oppose Compulsory Health Insurance."

Promises Continuing Efforts

As the association's leader for the coming year, Dr. Bauer pledged the medical profession to continuing efforts to raise medical and health standards for America. He stated that it is not enough that America has the world's highest standards of medical care, but that this type of service must reach the entire population. He urged expansion of public health facilities, and co-operation from all concerned to solve any problems, so that large numbers of people shall not be without proper environmental sanitation, protection against communicable disease and protection of their food, milk and water supplies. He urged physicians to work for forward-looking plans for the care of chronic invalids and programs for the medical care of the indigent. He noted that studies of medical care are constantly in progress:

> "Studies of the various methods of delivering medical care are being carried on by the American Medical Association, and these studies will be continued. It becomes increasingly apparent that no one method provides the answer for every area and every group of citizens. That is one of the medical profession's objections to any government-controlled type of medical care plan. Under such a plan the same system would be imposed on every region and every individual regardless of need or local conditions."

WISCONSIN EDUCATOR ADDRESSES STATE MEETING

"One of the disturbing aspects of the contemporary scene is the fact that in steadily pushing frontiers in the field of science ahead at an accelerated pace, we have widened the gap between technological achievement and man's adjustment to that achievement."

That theme was presented by Dr. J. Martin Klotsche, president of Wisconsin State College in Madison. Dr. Klotsche spoke at the annual banquet of the Minnesota State Medical Association on May 27.

Dr. Klotsche said that Americans cannot record

(Continued on Page 704)

◆ Reports and Announcements ◆

AMERICAN COLLEGE OF SURGEONS

The thirty-eighth annual Clinical Congress of the American College of Surgeons will be held at the Waldorf-Astoria in New York City from September 22 to 26, 1952.

Surgeons from all parts of the nation and a number of foreign countries will assemble to take advantage of the program which will include clinics, postgraduate courses, forums, panel discussions, color television and scientific and technical exhibits. Some sixty-two hospitals in the New York area will participate in the program of operative clinics and demonstrations.

At the presidential meeting, September 22, Dr. Alton Oschner of New Orleans will give the presidential address; Dr. Donald C. Balfour, Rochester, Minnesota, will give the seventh Martin Memorial Lecture on "The Evolution of Gastric Surgery" and Dr. Harold Foss, Danville, Pennsylvania, will be installed as president for 1953. At the convocation, September 26, Sir Cecil Wakeley of London, president of the Royal College of Surgeons, England, will give the Fellowship address.

Headquarters of the College are at 40 East Erie Street, Chicago.

MINNESOTA VALLEY GENERAL PRACTITIONERS AND RENVILLE COUNTY SOCIETY HOLD JOINT MEETING

At a joint meeting of the Minnesota Valley chapter of the American Association of General Practitioners held in Renville in May, the need for more trained nurses and the importance of the general practitioner in small communities were the main points of discussion.

Dr. Willis L. Herbert, general practitioner at St. Mary's Hospital, Minneapolis, was the feature speaker of the meeting. He gave the keynote of the meeting in stating that the AAGP is doing much to keep general practitioners from being replaced by specialists.

Dr. James Cosgriff, Sr., president of the AAGP unit and a member of the State Board of the AAGP, said "The public deserves a general practitioner" in defense of the country doctor as opposed to the specialists in metropolitan areas.

At the business session, Dr. W. E. Hines of Willmar was elected to succeed Dr. Cosgriff as president. Elected as secretary was Dr. James Cosgriff, Jr. of Olivia.

CONTINUATION COURSE IN ROENTGENOLOGY

The University of Minnesota will present a continuation course in *Gastro-Intestinal Roentgenology for Radiologists* from October 20 to 25, 1952. The course will be presented at the Center for Continuation Study on the University campus and will cover all aspects of roentgenologic examination of the gastro-intestinal tract.

The distinguished visiting faculty members will include: Dr. Olle Olsson, Professor, Department of Diagnostic Roentgenology, University of Lund, Lund, Sweden; Dr. Richard R. Schatzki, Chief, Department of Roentgenology, Mt. Auburn Hospital, Cambridge, Massachusetts; Dr. Frederic E. Templeton, Professor, Department of Radiology, University of Washington Medical School, Seattle; Dr. Paul C. Swenson, Professor, Department of Radiology, Jefferson Medical School, Philadelphia, Pennsylvania, and Dr. Leon Schiff, Associate Professor, Department of Medicine, University of Cincinnati College of Medicine, Cincinnati, Ohio.

On Wednesday, October 22, the Annual Leo G. Rigler Lecture will be presented by Dr. B. J. Kirklin, Professor, Department of Radiology, Mayo Foundation, Rochester.

The course will be presented under the direction of Dr. Leo G. Rigler, Professor and Head, Department of Radiology and Physical Medicine, and the remainder of the faculty will include members of the clinical and full-time faculty of the University of Minnesota Medical School and the Mayo Foundation.

LYON-LINCOLN COUNTY SOCIETY

Members of the Lyon-Lincoln County Medical Society entertained the attorneys of the two counties at a dinner in Chuck's cafe, Hendricks, on June 2. Speaker of the evening was a Minneapolis attorney, R. A. Scallen, who gave a very informative talk on "The Doctor in Court." Thirty-five members and guests were present. This has become an annual occasion among the legal and medical men of these two counties over the past few years.

SAINT LOUIS COUNTY SOCIETY

The second annual press conference of the Saint Louis County Medical Society was held May 23 in St. Luke's Hospital, Duluth. Duluth and Iron Range newspaper representatives were in attendance.

Sessions started with a panel of medical men and hospital administrators, Dr. Martin O. Wallace acting as moderator. Richard Fox, assistant administrator of St. Luke's and Sister Loretta, St. Mary's Hospital administrator, discussed "Facts about Hospital Costs." Dr. Earl Barrett, Duluth pediatrician, spoke on "Modern Methods for Salvage of Premature Infants." A motion picture entitled "The Romance of Aureomycin" was shown by Harry Haney.

The conference ended with a banquet in the Kitchi Gammi Club. Principal speaker was Dr. William P. Shepard, San Francisco, vice president of the Metropolitan Life Insurance Company. His subject was "Public Health and Socialized Medicine." Dr. L. R. Gowan was banquet toastmaster.

Honored at the banquet was Dr. Albert J. Chesley of Saint Paul, director of the Minnesota Department of Health, who has completed fifty years of service in the medical field.

(Continued on Page 684)

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Comparative Response to Common Methods of Therapy in Distal Colon Stasis*

	Number of Hours Residue is Retained						
	24	48	72	96	120	144	168
Control (No Therapy)				○○○	○○○○○○○○○○	○○○○○○○○	○○○
METAMUCIL	●●●●●●●●●●●●●●●	●●●●●	●●●	●	●		
Enemas	●	●●	●	●●●●	●●●●●●●●●	●●●●	●●●
Antispasmodics				●●●	●●●●●●●●●●	●●●●●●●●	●●●
Mineral Oil		●		●●●	●●●●●●●●●	●●●●●●●●	●●●

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*Barowsky, H.: A Roentgenographic Evaluation of the Common Measures Employed in the Treatment of Colonic Stasis, Scientific Exhibit, National Gastroenterological Association, Chicago, Sept. 17-22, 1951.

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Southern Minnesota Medical Association will be held at Austin on Monday, September 8.

The following program will be presented:

Program

Morning Session

1. "Migraine: Diagnosis and Treatment"
   Gustavus A. Peters—Rochester
2. "Physical Symptoms of Depression"
   William S. Chalgrin—Mankato
3. "Use of Compound F in the Treatment of Posttraumatic Bursitis of the Knee and Ankle"
   E. D. Henderson—Rochester
4. "Treatment of Cutaneous Malignancies"
   L. M. Hammar—Mankato
5. "Urgent Surgical Conditions in New Born Period"
   A. B. Hayles—Rochester
6. "Problems of Diseases of the Thyroid other than Hyperthyroidism"
   Martin A. Nordland—Minneapolis
7. "Melanin Spots of the Lips, Buccal Mucosa, and Digits with Associated Intestinal Polyposis"
   Lloyd F. Sherman—Minneapolis
8. "Management of Cases with Leakage from Duodenal Stump after Partial Gastrectomy"
   C. E. Rea—St. Paul
9. "The Responsibility of the Practising Physician and Health Department in the Case of the Aged"
   Robert N. Barr—Minneapolis

Afternoon Session

10. "Freedlander's Pneumonia—Case Report"
    John P. Dahlstet—Mankato
11. "Dissecting Aneurysm: Physical and Autopsy Findings—Case Report"
    Edwin J. Benjamin—Minneapolis
12. "Methods of Internal Fixation in Operative Treatment of Fractures of the Hip and Shaft of the Femur—Case Report"
    Harold J. Anderson—Austin
13. "Danger of Use of Cortisone in Acute Rheumatic Fever and Concurrent Renal Damage"
    C. H. Scheifley—Rochester
14. "Perforation of Rectum with Unusual Complications—Case Report"
    W. C. Bernstein—St. Paul
15. "Coronary Insufficiency"
    Burtis J. Mears—St. Paul
16. "Doctors' Disagreements in Court"
    Joseph C. Michael—Minneapolis
17. "Neurosurgical Treatment of Intractable Pain Due to Metastatic Carcinoma"
    H. J. Svien—Rochester

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The Northern Minnesota Medical Association will hold its annual meeting at Crookston, Minnesota, Friday and Saturday, August 22 and 23. Officers of the association are: Dr. George Sather of Fosston, president; Dr. W. S. Neff of Virginia, vice president; and Dr. C. L. Oppegaard, of Crookston, secretary-treasurer.

The scientific program to be presented is as follows:

Friday, August 22

A.M. *Morning Session*

9:00 "Diagnosis of Subdural Hematoma, Particularly in Children"
Gordon J. Strewler, M.D., Duluth

9:45 Discussion Period

10:00 "Psychiatric Treatment for the Neurotic Patient"
John E. T. Haavik, M.D., Duluth

10:45 Discussion Period

11:00 "The Management of Endometriosis"
John E. Faber, M.D., The Mayo Clinic, Rochester

12:00 Business meeting

P.M. *Afternoon Session*

2:00 "Certain Aspects of Biliary Tract Surgery"
Richard L. Varco, M.D., University of Minnesota, Minneapolis

2:45 Discussion Period.

3:00 "The Insurance Aspects of Heart Disease"
Harry E. Ungerleider, M.D., Director of Medical Research, Equitable Life Assurance Society, New York, N. Y.

3:45 Discussion Period.

4:00 "Prevention and Treatment of Respiratory Tract Infections."
Hobart A. Reiman, M.D., Philadelphia, Pa.

Evening Program

7:00 Annual Banquet
Address: "An American Looks at Asia"
Morris Wee, D.D., First Lutheran Church, Duluth

Saturday, August 23

Morning Session—9:00-12:00 Noon

Clinico-Roentgenological-Pathological Conference
Conducted by Henry Moehring, M.D., of Duluth and associates.

A full program of entertainment has also been planned for members of the Ladies' Auxiliary.

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* Lane, C. G., "Therapeutic Dermatitis", New Eng. J. Med., 246:77-81, 1952
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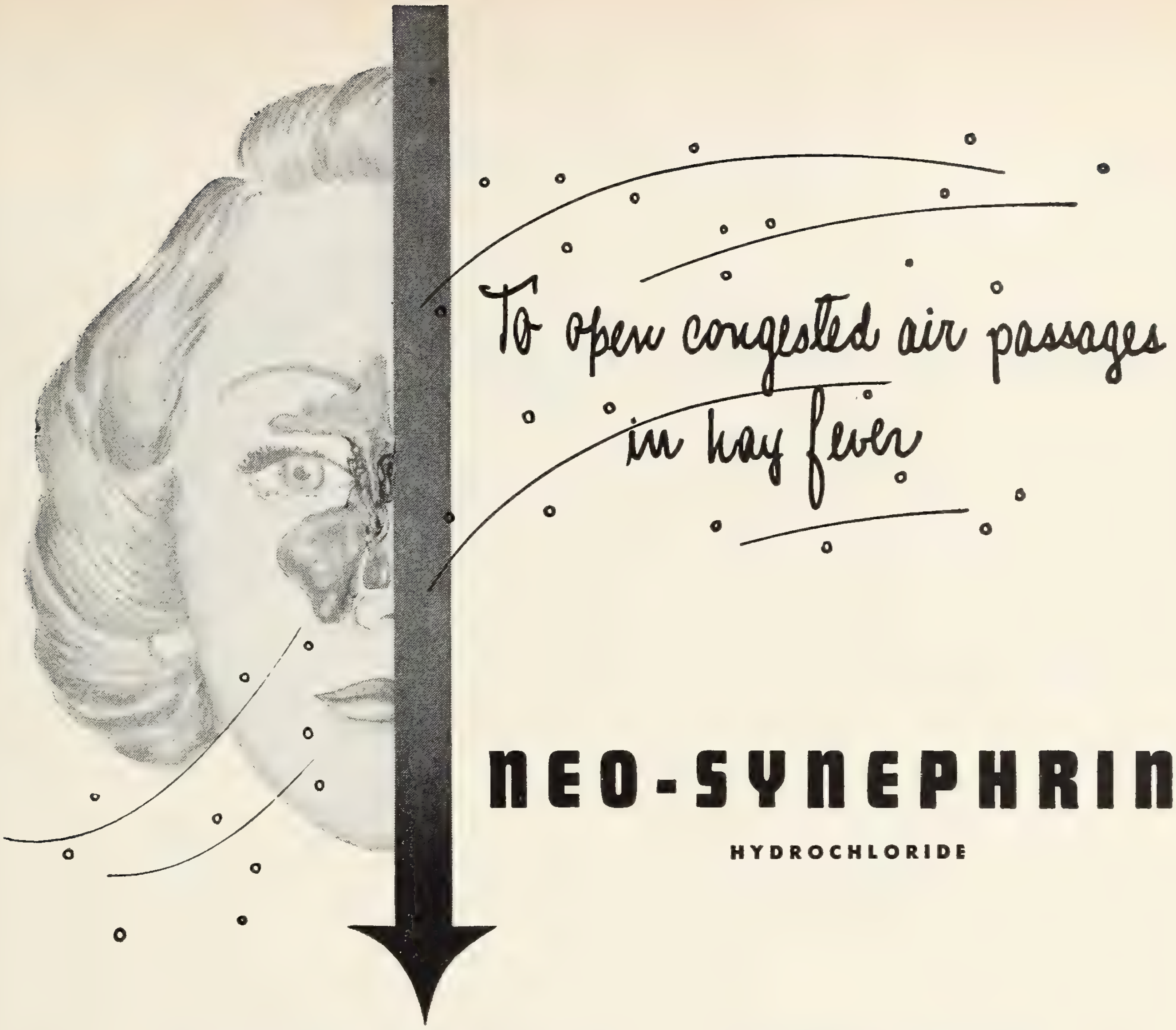
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Neo-Synephrine is practically free from sting and compensatory congestion; does not appreciably inhibit ciliary activity. Neo-Synephrine has been found relatively free from systemic side effects such as nervous excitation, cardiac reaction or insomnia even when tested on hypertensive, cardiac and hyperthyroid patients.[1]

Supplied **in 0.25% solution (plain), bottles of 1 oz., 4 oz. and 16 oz.; 0.25% solution (aromatic), bottles of 1 oz. and 16 oz.; 0.5% solution, bottles of 1 oz.; 1% solution, bottles of 1 oz., 4 oz. and 16 oz.; 0.125 (1/8)% solution, bottles of 1/2 oz.; 0.5% water soluble jelly, in 5/8 oz. tubes.**

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[1] Van Alyea, O. E., and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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Woman's Auxiliary

RAMSEY AUXILIARY AIDS REHABILITATION CENTER

The Woman's Auxiliary to the Ramsey County Medical Society has contributed a whirlpool bath to the newly enlarged Saint Paul Rehabilitation Center, which has moved to the Wilder Health Center. The new whirlpool bath will be used in the therapeutic nursery.

In accepting the gift on behalf of the Rehabilitation Center, Mr. Louis S. Headley, president, expressed his appreciation and thanks and stated: "This gift by the Auxiliary will be part of the center's permanent equipment and will provide treatment for hundreds of children throughout the years. The Auxiliary is to be congratulated for selecting this most useful gift as its community project for the years 1952-53."

The whirlpool bath will be used to provide hydrotherapy for children. The whirlpool provides a combination of heat and massage through the agitation by air of thermostatically controlled water. Its use is of particular advantage in the treatment of strains and sprains, in the rehabilitation of fractures where active and passive motion, along with heat and massage are desired, and in the treatment of other conditions where relaxation of muscles is essential.

Center Notes History

In moving into enlarged quarters, it was noted that since the opening of the center in 1948, the center has treated approximately 2,300 patients, with referrals by 330 doctors.

The Saint Paul Rehabilitation Center was originally opened in 1948 on the fourth floor of the Wilder Dispensary building on Rice street. It was sponsored and financed by the Minnesota Society for Crippled Children and Adults, the Saint Paul Junior league, and the Wilder charity to make available to the people of Saint Paul and its environs the services of physical, occupational and speech therapists upon the referral of a physician. The original staff consisted of the director, who was also the speech therapist, a physical therapist, an occupational therapist, and an office secretary.

During the first year 100 doctors referred 366 patients, who made 7,222 visits to the center.

By the end of the first year it was evident that the approximately 2,800 feet available to the center in the Wilder Dispensary Building was entirely inadequate. Although the staff had been tripled in size, the space available was not adequate for proper treatment of the patient load. The center served an approximate average of 670 patients during both the second and third years.

For the first three years the Rehabilitation Center was operated as a voluntary nonprofit association and was governed by an Executive committee made up of representatives of the three sponsors and the Family Nursing Service. In the summer of 1951 the Saint Paul Rehabilitation Center was incorporated with a representative Board of Directors of twenty-five, nine of whom represent the three sponsors.

Advisory Group Appointed

Before undertaking to establish the center, the original sponsoring committee, which was appointed by the Board of Directors of Family Nursing Service, obtained the approval of the Ramsey County Medical society and the endorsement and support of a number of leading physicians. From the beginning, the center has had the benefit of the advice and counsel of a medical advisory committee, which at present is made up of Dr. Frank Adair, Dr. John J. Beer, Dr. Carl C. Chatterton, Dr. Harold F. Flanagan, Dr. Ernest M. Hammes, Dr. Albert F. Hayes, Dr. Alfred J. Ouelette and Dr. Hyman Lippman. The medical advisory committee acts as a liaison with the medical profession and recommends to the governing board all medical policies.

The new center is planned so that the various phases of treatment can be co-ordinated to provide the patient the greatest possible assistance toward resuming his place in the community.

In addition to the whirlpool bath contributed by the Ramsey Auxiliary, the center has three such whirlpool baths as well as a large Hubbard tank in the hydrotherapy section of the physical therapy department. The center also has a lamp room with individual treatment booths and a gymnasium.

Craft and activities for daily living will be taught in the occupational therapy department. A new kiln has been installed for the ceramics unit, and a print shop and looms have been set up in separate rooms.

The speech therapy department will have nine treatment rooms, two supplied with facilities for testing, hearing and special audio-amplifying and sound recording equipment. Two others have one-way windows for observation, important in speech training.

The remodeled Wilder Public Bath building, undertaken by the Board of Directors of the Wilder Charity, and now known as the Wilder Health Center, is owned and operated as a community service by the Wilder Charity. The entire cost of remodeling was paid by this charity and space occupied by the Rehabilitation Center and Family Nursing Service is provided rent-free. The remodeling was completed about June 1 and shortly after the Rehabilitation Center moved into its enlarged quarters which were planned and designed to meet its special medical requirements. In its new quarters it is believed to be one of the finest and most complete rehabilitation centers in this area.

It will be easier to obtain the support needed for an effective health program if it can be shown that such a program will not only enrich the individual human life but will also bring to the community which invests in health tangible economic benefits. Prevention is not only better than cure; it is also cheaper than cure. C. E. A. Winslow, "The Cost of Sickness and the Price of Health," *W.H.O. Monograph Series*, No. 7, 1951.

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In Memoriam

CHARLES DONEY FREEMAN

American dermatology lost an outstanding representative and all who knew him a loyal friend when Charles D. Freeman died on April 18, 1952.

Dr. Freeman was born in Saint Paul on January 25, 1879. He was graduated in Medicine from the University of Minnesota in the class of 1904 and served his internship in the Saint Paul Lutheran Hospital. In the company of Dr. Egil Boeckmann he then went abroad where he studied under the great dermatologic masters in Europe for two years, especially those of Vienna, Paris and London. Much of the time was spent with the eminent teacher, Max Joseph of Berlin. Returning to Saint Paul he practiced his specialty until his terminal illness began.

As an assistant professor of dermatology of the University of Minnesota, he was a diligent teacher at Ancker Hospital and the Saint Paul Dispensary.

Dr. Freeman was a member of the American, Chicago and Minnesota Dermatological societies and the first president of the latter. He was a constant attendant of the Minnesota Academy of Medicine and its president in 1933. He was a member of the Ramsey County Medical Society, the Minnesota State Medical Association, the American Medical Association and the Clinical Club of Saint Paul. He was attending dermatologist at the Charles T. Miller, St. Joseph's and St. Luke's hospitals. He originated the treatment of Kerion Celsi with solid carbon dioxide.

Dr. Freeman served as a captain in World War I.

Although he was a distinguished physician in every sense of the word, it was as an individual that he attained great esteem in the eyes of his friends. Rarely could one find a man who adhered so strictly to a rigid code of conduct. He staunchly defended his principles and friends and as vehemently condemned what he considered sham or unethical practices. He was abrupt, concise and at times caustic in his manner of speech, but was ever ready to be corrected if shown to be misinformed. He loved life and thoroughly enjoyed to sit around the festive board with his friends, who came from all walks of life. A man, if proven, was a man with Charlie and he never inquired about his origin, creed or color. He greatly enjoyed fishing, hunting and bridge and had particular companions for each.

Dr. Freeman married Caroline Boeckmann on January 1, 1910, the daughter of his greatly respected guide and teacher Dr. Edward Boeckmann and their marriage was an ideal example of devotion, understanding and mutual admiration. He is survived by his widow, a son, and two daughters: Dr. Charles D. Jr., Caroline M. (Mrs. W. D. McCall), and Helga B. He also has two grandchildren, Willard D. McCall, Jr., and Charles Freeman McCall, All live in Saint Paul.

The friendship of Charlie Freeman and the late Dr. John Butler was one of those rare companionships that became a legend. They attended all medical meetings together, they were close social friends, and they complemented each other in so many ways that they could never be thought of but jointly. Even though they had contrasting personalities, their attraction for each other began in medical school and continued unabated throughout their lives. Charlie thought of Doctor Henry Michelson of Minneapolis as his special protegé and their association was very close.

Dr. Freeman considered life an adventure which was to be experienced without regret or protest. He accepted the good with the bad and believed wholeheartedly in the supremacy of the individual. He neither sought nor would accept patronage and the mere mention of a socialized order of society brought forth his most vigorous protest.

One of the most gratifying and proud moments in Doctor Freeman's life was to see his son assume his dermatological practice in Saint Paul and, as Charlie put it "do well."

He was a grand man with many unique and lovable qualities and he will be long remembered by his many friends whose deep sympathy is extended to his surviving family.

John F. Madden, M.D.

WILLIAM FRIESLEBEN

Dr. William Friesleben of Sauk Rapids, Minnesota, died May 20, 1952, at the age of seventy-four.

Dr. Friesleben was born in Livingston County, Illinois, February 10, 1878. He obtained a B.S. degree from Valpariso, Indiana, in 1901 and an M.D. degree from the Ohio Medical College at Cincinnati in 1906. In 1907 he moved to Sauk Rapids, where he practiced continuously for the past forty-five years.

On June 30, 1946, his many friends set the day aside as Friesleben Day and paid tribute to the doctor in recognition of his long and faithful service to the community. Over 2,500 persons attended the celebration.

Besides practicing, Dr. Friesleben served many years on the Public School Board, the Benton County Fair Board, the Village Board of Health and as County Coroner. He was a past chief-of-staff of the St. Cloud Hospital and past president of the Stearns-Benton County Medical Society. He was a member of the Minnesota State Medical Association and the American Medical Association.

Dr. Friesleben is survived by his wife; a brother, Arthur, and a sister, Mrs. Emma Wunch, both of Pontiac, Michigan.

WILLIAM A. KENNEDY

Dr. William A. Kennedy, Saint Paul, died on April 30, 1952, following a long illness.

Dr. Kennedy was born August 1, 1893, in Minneapolis. He obtained his medical degree from the University of Minnesota in 1918 and took postgraduate work in the

(Continued on Page 704)

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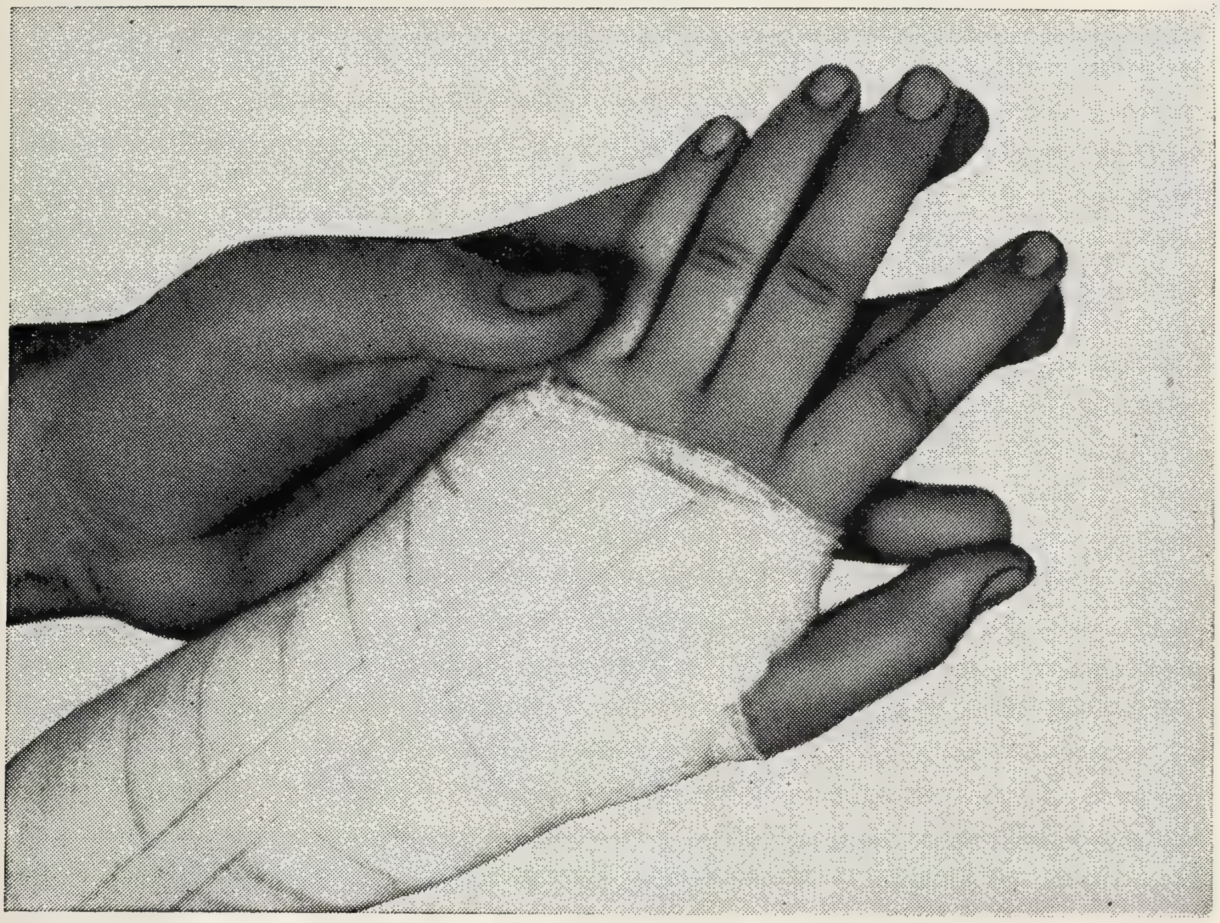

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Of General Interest

Dr. Neil S. Dungay, one of the best known and best loved professors at Carleton College, Northfield, was officially retired from the faculty as of Monday, June 30, this year.

Dr. Dungay, professor of hygiene and public health, came to Carleton in 1907. He received his B.A., M.B. and M.D. degrees from the University of Minnesota; his Ph.D. from the University of Chicago. A member of Phi Beta Kappa and of Sigma Xi, Dr. Dungay is also a member of Alpha Omega Alpha, honorary medical society, Phi Beta Pi, medical fraternity, and a Fellow of the American Association for the Advancement of Science.

He is a member of the American Medical Association, Minnesota State Medical Association and of the Rice County Medical Society. He has served as president of the North Central Section of the American Student Health Association. Dr. Dungay esablished the first organized Carleton College Health Service in 1925 and was a physician in the Health Service and its director for many years. For many years, Dr. Dungay has been a member of the Woods Hole Corporation, Cape Cod Marine Biological Laboratory.

An interesting fact in Dr. Dungay's career at Carleton is that Dean Horace Goodhue, who came to Carleton in 1867, was still at the College at the time of Dr. Dungay's appointment in 1907, thus making Dr. Dungay's and Professor Goodhue's years of service at Carleton cover the entire history of the college.

* * *

Dr. Olin West, for twenty-three years secretary and general manager of the American Medical Association, passed away June 19 at his home in Nashville, Tennessee. Dr. West retired on April 1, 1946, and had been living in Nashville since that time.

* * *

The American Heart Association announced that it has approved seventy-two grants-in-aid totaling $361,522.50 to research being conducted in twenty states, the District of Columbia, Montreal and Beirut, Lebanon. This increases to $578,172.50 the amount awarded under the National Association's research program during the fiscal year and raises to over four million dollars the total amount appropriated during the past four years.

* * *

Beginning with the January 1953 issue, the *New Orleans Medical and Surgical Journal* will become the *Journal of the Louisiana State Medical Society.* The journal has had its present name since 1844 and is one of the oldest journals in the country. As it is now the property of the Louisiana State Medical Society, the new name properly attests that it represents the profession of the entire state and not simply that of New Orleans.

Dr. Orville H. Jones, Mankato, moved his office from 303 National Citizens Bank to 1008 South Front Street on May 15, 1952.

* * *

Dr. Karl A. Meyer, president of the Cook County Graduate School of Medicine, has announced the receipt by the school of a donation of $100,000 from the Joseph and Helen Regenstein Foundation. Presentation of the donation was made on the occasion of the official opening of the school's new building located at 707 South Wood Street, Chicago, Illinois.

* * *

Among a total of seventy-four retiring professors and employes of the University to receive certificates from President Morrill upon their retirement from the faculty in June were: Dr. Walter C. Alvarez, Dr. Moses Barron, Dr. William L. Benedict, Dr. David M. Berkman, Dr. Willard L. Boyd, Dr. Harry H. Bowing, Dr. Albert C. Broders, Dr. Della G. Drips, Dr. Bert E. Hempstead, Dr. Norman M. Keith, Dr. Edward C. Kendall, Dr. Henry W. Meyerding, Dr. Robert D. Mussey, Dr. Gordon B. New, Dr. John de J. Pemberton, and Dr. Russell M. Wilder.

* * *

Notes from the AMA Meeting

In his address to the House, Speaker Francis F. Borzell, Philadelphia, revealed that the average age of a member of the House is only 59 years and that the average length of service in the House is five and one-half years. . . . The Chicago Medical Society contributed $25,000, the Woman's Auxiliary to the AMA, $10,000, and the American College of Radiology, $2,000 to the American Medical Education Foundation. . . . To save time and cover more ground quickly, Bob Lyon of the AMA business and advertising department borrowed his young daughter's roller skates and used them to coast up and down the mile-long Navy Pier, home of the scientific and technical exhibits. . . . Dr. Herbert McLean Evans, Berkeley, Calif., was the recipient of the $5,000 Passano Foundation Award for 1952. . . . Boston heart specialist Paul Dudley White made a flying trip to Chicago to accept the AMA Distinguished Service Award for 1952. . . . Dr. Charles Donatelli, Toledo, won the 1952 championship of the American Medical Golfing Association with a 36-hole score of 154 (76-78).

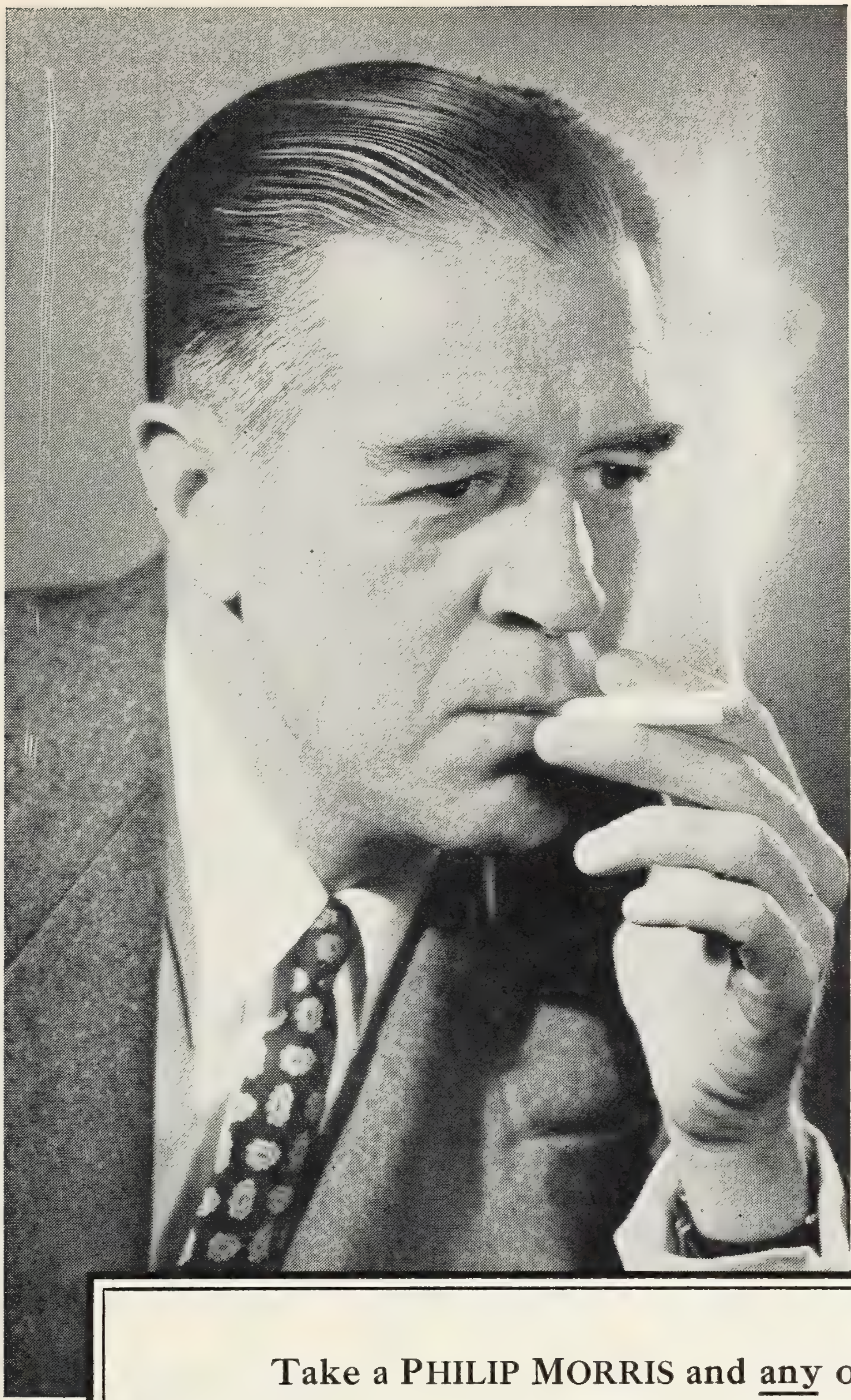
* * *

Dr. W. McKraig, Rochester, received an honorary degree from Ohio Wesleyan College.

* * *

Dr. Lyle Benson, who was released from the Army recently, has returned to Tracy with his family from Camp Rucker, Alabama, where he had been serving as commander of the 104th Clearing Com-

(Continued on Page 692)



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PHILIP MORRIS

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(Continued from Page 690)

pany of the 47th National Guard division. Dr. Benson resumed his medical practice with the Hoidale-Workman Clinic in Tracy on June 15.

* * *

Dr. Louis A. Brunsting, member of the section of dermatology of the Mayo Clinic, Rochester, and professor of dermatology and syphilology in the Mayo Foundation, left in June for a two and a half month trip in this country and Europe. Highlight of his trip will be attendance at the International Congress of Dermatology and Syphilology in London, July 21-26, as United States secretary of the Congress. He is chairman of a symposium on "Cortisone and Corticotropin (ACTH): Their Effects on the Skin and Its Diseases," and will present a paper on effects of these hormones in lupus erythematosus and other collagen diseases. He will also demonstrate an exhibit prepared in association with Drs. R. R. Kierland and P. A. O'Leary on "Cortisone and Corticotropin (ACTH): Their Use in Dermatology."

Dr. Brunsting will attend medical clinics in Edinburgh, Scotland, and on the continent. He will present papers at the Munich Dermatologic Society meeting July 5 and in Leyden, Holland, before the faculty of the University of Leyden, July 17. He will also give a clinic for medical students in Stockholm, Sweden. The Brunstings will return to Rochester, August 25.

Dr. K. A. Danford, who completed his service with the Naytahwaush Clinic, Mahnomen, in June, was honor guest at a farewell luncheon given by members of the various communities served by the Clinic, and was presented with a purse in appreciation of his "long and faithful" service. Dr. Danford, who has served as visiting physician for the Clinic during the past five years, will be succeeded by **Dr. Mildred Nordlund** of White Earth.

* * *

Dr. H. De Boer of Edgerton and **Dr. A. H. Brown** of Pipestone were awarded life memberships in the Southwestern Minnesota Medical Society at a recent meeting in Worthington. Dr. De Boer has been a practicing physician for more than forty years and Dr. Brown has practiced for more than fifty years.

* * *

Dr. James H. DeWeerd, member of the section of urology at the Mayo Clinic, Rochester, is now visiting medical centers in nine countries in Europe. Upon recommendation of the graduate committee of the Mayo Foundation, Dr. DeWeerd was named recipient of the Dr. J. William White award for foreign travel, which is given for superior achievement during fellowship in the Mayo Foundation and stipulates the completion of all requirements for an advanced degree of Master of Science in a surgical specialty. Dr. DeWeerd, accompanied by Mrs. DeWeerd, will visit medical centers in Paris, Rome, Berne, Zurich, Amsterdam, Copenhagen, Stockholm,

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Oslo, Glasgow, Edinburgh, Newcastle-on-Tyne and London. The DeWeerds will return to this country in August.

* * *

Dr. L. M. Evans of Sauk Rapids has received notification of his admittance to membership in the International College of Surgeons.

* * *

Dr. L. M. Ellertson of Albert Lea was elected president of the Albert Lea Junior Chamber of Commerce at a meeting held late in May. Dr. Ellertson has practiced in Albert Lea with Drs. Erdahl and Nelson since September, 1950. He is a graduate of the State University of Iowa College of Medicine, and was a medical officer in the U. S. Navy and a resident physician at Ball Memorial Hospital, Muncie, Indiana, before coming to Albert Lea.

* * *

Dr. Mario Fischer, Duluth health director, has been elected a vice president of the National Tuberculosis Association. The election took place at the forty-eighth annual meeting held in Boston.

* * *

Dr. Clare Gates, director of health education in Minneapolis, resigned from the city health departmen, effective July 1, to become director of the health and medical care division of the Community Welfare Council of Hennepin County. He succeeds

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Dr. M. B. Hesdorffer who resigned in June to become medical director of the Du Pont Company plant at Martinsville, Virginia.

* * *

Dr. Lowell A. Gess and his family were honor guests at a farewell reception early in June given by the Calvary Evangelical United Brethren Church, Saint Paul, on the occasion of their leaving for mission work in Nigeria, Britsh West Indes. Dr. Gess, who is a licensed minister in the United Brethren Church, is a graduate of Macalester College and received his M.D. degree from Washington University in 1951. He has been serving his internship at Ancker Hospital, Saint Paul.

* * *

Dr. R. I. Gruys has terminated his practice at Windom, Minnesota, preparatory to early entry into the service, having received notice of his classification with selective service. He will visit friends and relatives in Chicago before going to his station.

* * *

Dr. Donald F. Holm, who has been practicing in Wood Lake on a temporary basis, has announced that he will discontinue practice there effective July 1 in order to take care of his practice in Willmar. Before leaving Wood Lake, Dr. Holm addressed a meeting of the Farmers Union on the subject of "Mental Health." A motion picture on mental health was shown preceding Dr. Holm's talk.

* * *

Dr. Henry F. Helmholz, chief of pediatrics at the Mayo Clinic, Rochester, is chairman of the National PTA Congress standing committee on health. He is one of nineteen new chairmen named at the group's fifty-sixth annual meeting in Indianapolis, Indiana. All will serve three years as committee chairmen and members of the PTA board of managers. Dr. Helmholz is emeritus professor of pediatrics at the University of Minnesota.

* * *

Dr. John W. James, son of **Dr. and Mrs. William H. James,** of Lake Crystal, and Miss Virginia Ann Winkle of Rochester were united in marriage, June 7, at a wedding ceremony held in Trinity Lutheran church, Rochester. Dr. and Mrs. James left for a wedding trip to California and have now returned

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to Rochester where they will make their home. The bride is a graduate of the University of Minnesota school of medical technology and the University of Minnesota graduate school. Dr. James is a graduate of the University of Minnesota medical school.

* * *

Dr. M. E. Janssen, Crookston, was guest speaker at a meeting of the Crookston chapter of Registered Nurses late in May, talked on the administration of the new drugs and cited the nurse's responsibility with regard to intravenous therapy. Dr. Janssen is a member of the Northwestern Clinic staff.

* * *

Dr. E. B. Kinports of International Falls left in June for San Diego, California, where he will take three years of advanced medical work at Mercy Hospital. The hospital, a 350-bed institution, is operated by the Sisters of Mercy and is considered the largest in San Diego. Dr. Kinports plans to resume practice in International Falls upon completion of his study in San Diego.

* * *

The first comprehensive survey of rehabilitation facilities providing direct services for the physically handicapped was reported in June to the quarterly meeting of the Community Chest and Council of Hennepin County, Inc., by **Dr. Frank H. Krusen,** head of the Mayo Clinic section on physical medicine and rehabilitation, who directed the survey in Minneapolis and Hennepin County.

Dr. Krusen stated in his report that Minnesota has not been among the leaders in providing rehabilitation for the seriously disabled. It stands ninth from the bottom. Said Dr. Krusen, "It may be as humane to save one who is disabled from years of dependency as to save his life."

Recommendations made in the report are:

Commendation of the University of Minnesota for its establishment and planning for the division of physical medicine and rehabilitation, for training physicians and auxiliary personnel and the supervision of the rehabilitation program in University Hospitals and its affiliated institutions.

Review by the sponsoring committee, or another one specially constituted, of the information reported with the object of co-ordinating all existing facilities in rehabilitation and with the hope of eventually adding a rehabilitation center to these facilities.

Assumption of professional responsibilities for physical medicine and rehabilitation services at the Minneapolis Curative Workshop by the University of Minnesota physical medicine and rehabilitation division.

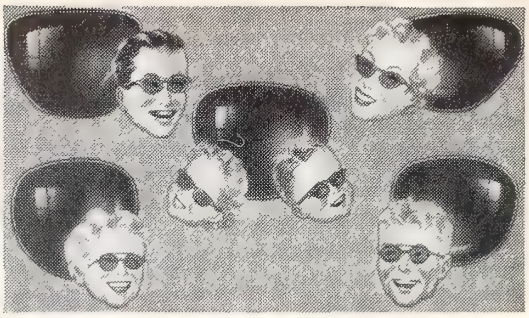
Increased budget and staff for the Minnesota division of vocational rehabilitation in the state department of education.

Special Study of problems of sheltered and homebound employment in Minneapolis and Hennepin county, with particular consideration of plans for expanding sheltered workshop facilities.

Establish a general registration of all handicapped persons.

Expand social service facilities in conjunction with rehabilitation programs.

Dr. Krusen emphasized that the first step to be taken locally should be co-ordination of existing facilities



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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting September 8, October 20.
Surgical Anatomy and Clinical Surgery, two weeks, starting September 22, November 3.
Surgery of Colon and Rectum, one week, starting September 15.
Gallbladder Surgery, ten hours, starting October 20.
Basic Principles in General Surgery, two weeks, starting September 8.
General Surgery, two weeks, starting October 6.
General Surgery, one week, starting October 6.
Breast and Thyroid Surgery, one week, starting October 6.
Esophageal Surgery, one week, starting October 13.
Thoracic Surgery, one week, starting October 20.
Fractures and Traumatic Surgery, two weeks, starting October 6.
GYNECOLOGY—Intensive Course, two weeks, starting September 8, October 20.
Vaginal Approach to Pelvic Surgery, one week, starting September 22, November 3.
OBSTETRICS—Intensive Course, two weeks, starting September 29, November 3.
PEDIATRICS—Informal Clinical Course every two weeks.
MEDICINE—Electrocardiography and Heart Disease, two weeks, starting July 14.
Gastroscopy and Gastroenterology, two weeks, starting September 15, November 3.
UROLOGY—Intensive Course, two weeks, starting September 8.
Cystoscopy, ten days, starting every two weeks.
DERMATOLOGY—Intensive Course, two weeks, starting October 13.

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with no intent to supersede the various agencies with a rehabilitation center.

He explained there is an immediate need for transfer and interchange of services between the existing agencies.

The ten critical services for rehabilitation work include registration, medical diagnosis, vocational diagnosis and guidance, rehabilitation planning, social welfare, treatment, training, selective placement, recreation and follow-up.

* * *

Dr. J. Grafton Love, Rochester, received an honorary Doctor of Science degree from his alma mater, Wake Forest College, Wake Forest, North Carolina, during commencement exercises in June. He is a 1925 graduate of the college.

* * *

Dr. Charles W. Mayo of the Mayo Clinic, Rochester, was re-elected to the Board of Directors of Northwest Airlines at the annual meeting of shareholders this year. Dr. Mayo, who has been active in aviation medical research and has served in the medical reserve corps, has been a member of the Airline's Board since 1948.

* * *

Dr. Henry W. Meyerding of Rochester was made an honorary citizen of the city of Bordeaux, France, recently, according to an announcement issued by the International College of Surgeons. Dr. Meyerding, who is president of the United States chapter of the college, together with Dr. Max Thorek of Chicago, founder and secretary-general of the college, were made honorary citizens of the French city during meetings of the French chapter, preliminary to the biennial international meeting at Madrid, Spain, in May.

* * *

Dr. Chris Melde of Olivia has been chosen chairman of the Renville County chest x-ray survey to be conducted in all parts of the county between September 1 and November 15, this year.

* * *

Dr. and Mrs. M. S. Nelson of Granite Falls were honor guests at a reception and banquet given by members of the local hospital board in recognition of their long activity in hospital work in the community. In commemoration of the event, Dr. and Mrs. Nelson were presented with a bronze plaque.

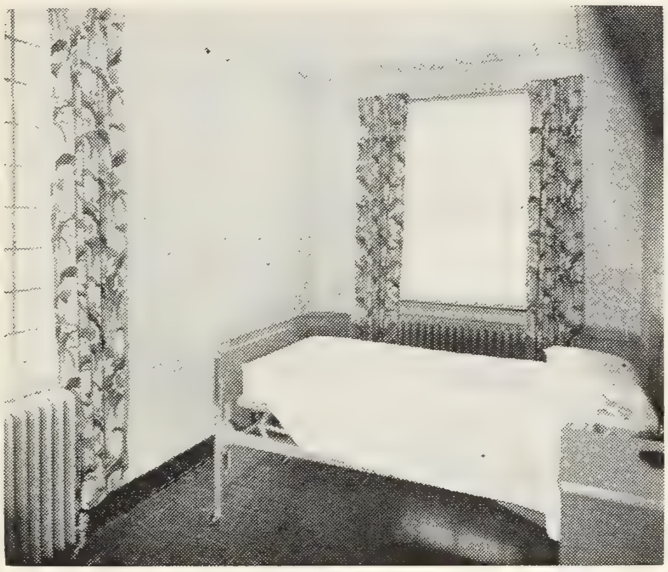
* * *

Dr. Siegfried Oeljen of Waseca was speaker of the evening at a recent meeting of 4-H Club leaders of Waseca County. He discussed proper use of the eyes with regard to conservation of sight and gave an illustrated talk on proper posture and correct reading distance. In doing this, he also illustrated the reasons for many eye difficulties.

* * *

Newest member of the medical staff at Community Health Center, Two Harbors, is **Dr. Robert H. Painter**, native of Starkesboro, Vermont. Dr. Painter is a graduate of Jefferson Medical College in Philadelphia and served his internship at the Edward J.

(Continued on Page 698)



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Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
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Child to age 19	1.50	3.00	4.50	6.00

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(Continued from Page 696)

Meyer Memorial Hospital, Buffalo, New York. Dr. Painter practiced at Collbran, Colorado, prior to coming to Two Harbors.

* * *

Dr. D. R. Philp of Windom is now associated in practice with Dr. L. J. Hoyer as a partner in the Windom Clinic. The partnership was formed following two years of association in private practice.

* * *

Dr. E. N. Peterson of the Lenont-Peterson Clinic, Virginia, was a speaker on the program of the Lake Superior Mines Safety Council held in Duluth late in May. His subject was "Medical Programs in the Mining Industry."

* * *

Dr. and Mrs. D. E. Pohl and their two sons left Crookston in May for Boston, where Dr. Pohl is taking a three months' course in Boston City Hospital. Upon completion of the course, sponsored by Harvard University, Dr. Pohl will move his family to Austin, Texas, where he will resume medical practice about September 1.

* * *

Dr. John Pone, who has just completed his intern training at Deaconess Hospital, Minneapolis, will become associated with the Osseo Clinic, Osseo, this month. Dr. Pone was born in Riga, Latvia, is a graduate of the University of Latvia and later became a specialist in surgery. He brings a wealth of medical and surgical experience to the community in which he will practice as he owned a private hospital in his native country, was surgeon at the Municipal Hospital of Libau and later worked in the same capacity in a hospital in Germany. He has done much in the field of reconstructive surgery and is the author of a number of books on various medical subjects.

* * *

Dr. Edward H. Rynearson of Rochester received an honorary Doctor of Science degree from his alma mater, Ohio Wesleyan University, at commencement time in June. Dr. Rynearson was graduated from Ohio Wesleyan in 1922.

* * *

Dr. Sheldon C. Reed, of the Dight Institute of Human Genetics, University of Minnesota, was principal speaker on "The Biology of Mental Deficiency" at the concluding meeting of the Minnesota Society for the Mentally Retarded held in Saint Paul in June.

* * *

Dr. R. B. Skogerboe of Karlstad gave the Memorial Day address in Newfolden at the special program given under the auspices of the Otto Knutson Legion Post and Auxiliary, May 30.

* * *

Following completion of a postgraduate course in surgery in Philadelphia, **Dr. Peter J. Schultz** has returned to his practice in Minneapolis. En route home, Dr. and Mrs. Schultz visited the New England states, Canada and Niagara Falls.

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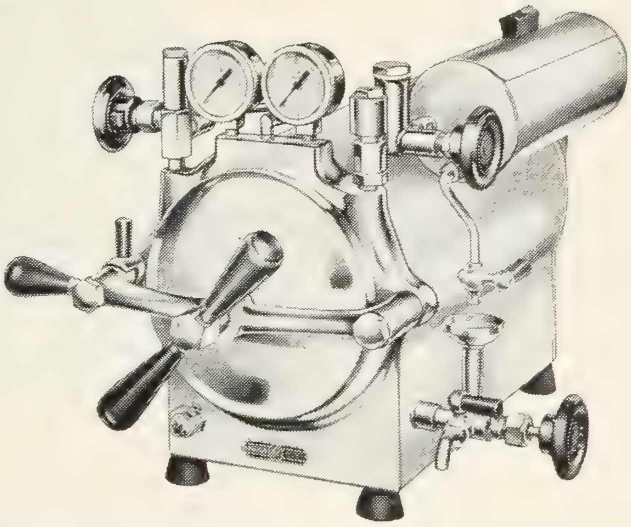

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Dr. and Mrs. W. E. Richardson of Saint Paul were honored at an open house in observance of their Golden Wedding anniversary in June. Dr. Richardson, a graduate of Rush Medical College in 1896, spent most of fifty years in practice in Slayton, Pipestone, and Rushford. After retiring from general practice in 1948, he served as plant physician in Morrels' Packing Plant at Sioux Falls, South Dakota.

* * *

Dr. Edward L. Tuohy of Duluth discussed "Feeding the Aged and Chronically Ill" before the eleventh annual institute of Friends of the Land, July 1, at the University of Illinois medical center in Chicago. The institute is addressed each year by scientists, health workers, soil experts, farmers and nutritionists with emphasis placed on food and soil developments.

* * *

Dr. L. A. Vadheim of Tyler, physician and surgeon in Lincoln County for more than forty years, presented a paper on "Control of Tuberculosis in Lincoln County" at the annual convention of the American Medical Association in Chicago in June. Lincoln County was the first county in the world to be accredited tuberculosis-free and the first to hold a survey and x-ray chest examinations of all persons in the county.

* * *

Dr. Kathlene Jordan of Riverside Sanatorium will visit county schools in Lyon County the latter part of September and early October for a county-wide tuberculin-testing survey. Adults as well as school children will be included in the survey, according to Dr. W. H. Valentine of Tracy, president of the County Tuberculosis and Health Association.

* * *

Dr. and Mrs. S. W. Watson of Royalton attended the meeting of the American Medical Association in Chicago in June.

* * *

While attending the annual convention of the American Medical Association in Chicago in June, **Dr. and Mrs. Harold Wahlquist** of Minneapolis celebrated their twenty-eighth wedding anniversary. They contributed $100.00 to the American Medical Education Foundation fund as a wedding anniversary gift. Mrs. Wahlquist is the immediate past president of the Woman's Auxiliary to the American Medical Association.

* * *

Dr. E. P. K. Fenger, staff member of Glen Lake Sanatorium, Oak Terrace, has been elected to the Board of the Hennepin County Tuberculosis Association. Dr. Asher White of Minneapolis was re-elected president.

* * *

Dr. and Mrs. H. H. Young of Rochester attended a combined meeting of the American and British Orthopedic Associations in London, England, in June.

HOSPITAL NEWS

At the annual meeting of the medical staff of St. Lucas Deaconess Hospital of Faribault, held in Kenyon at the home of the retiring president, Dr. R. R. Moses, on June 3, the following officers were elected for the ensuing year: Dr. Donald J. Studer, Faribault, president; Dr. F. C. Meyer, Kenyon, vice president; Dr. B. A. Orr, Faribault, secretary.

Dr. Robert Kierland, dermatologist at the Mayo Clinic, Rochester, presented a paper on "Common Skin Diseases" following the business meeting.

Members of the staff were entertained at dinner by Dr. and Mrs. R. R. Moses.

* * *

Dr. John O'Leary was elected chief of staff of Northwestern Hospital, Thief River Falls, at a meeting of the staff held in May. Dr. J. Biedermann was elected vice chairman, and Dr. Paul Wendt, secretary-treasurer.

* * *

Dedication ceremonies and open house were held in the new $750,000 addition to Fairview Hospital, Minneapolis, Sunday, May 25. Dr. J. A. Aasgaard, president of the Evangelical Lutheran church, gave the dedicatory address.

Guided tours through the new addition followed the program of speakers and musical numbers. The new building in the rear of Fairview Hospital contains surgical rooms, class rooms, a dining room, kitchen, laundry and storage facilities.

* * *

Dr. Edmund B. Flink, formerly of Cambridge, has been appointed chief of medical service of the Minneapolis Veterans Administration Hospital. He will retain affiliation with the University of Minnesota as associate professor of medicine.

* * *

Dr. John Reitmann, superintendent of the Sandstone State Hospital, has resigned and will continue his psychiatric training at Rochester State Hospital, as soon as a successor is named to fill his place at Sandstone.

BLUE CROSS-BLUE SHIELD

Minnesota Blue Shield Benefits Exceed $1,000,000 in 1952.—Over $1,237,927 in Blue Shield benefits were received by Minnesota subscribers during the first four months of this year, Arthur M. Calvin, executive director, reported after the fifth annual board meeting of Minnesota Medical Service, Inc. (the Blue Shield Plan), held in conjunction with the Minnesota State Medical Association's ninety-ninth annual meeting, May 26 to 28 in Minneapolis.

At the opening board meeting held Monday, May 26 at the Radisson Hotel, the following present officers of Minnesota Blue Shield were re-elected: O. I. Sohlberg, M.D., Saint Paul, president; Richard R. Cranmer, M.D., Minneapolis, vice president; C. A. McKinlay, M.D., Minneapolis, secretary; and E. C. Bayley, M.D., Lake City, treasurer. Doctors Sohlberg, Cranmer, and Bayley also were re-elected to the Minnesota Blue Shield Board of Directors for three-year terms. Mr. F. Manley Brist, Saint Paul attorney, is legal counsel for the Minnesota Blue Shield Plan.

"Through April 30, this year, 34,738 Minnesota sub-

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scribers received Blue Shield benefits amounting to $1,237,926 representing 43,285 medical-surgical services," Mr. Calvin stated.

"An interesting commentary," Calvin said, "is that 66.8 per cent (23,202) of the total Blue Shield medical-surgical claims through April 30, were incurred by dependents of family contracts. Payments on behalf of dependents alone totalled over $800,000 during the first four months of 1952."

"Since 1947 (inception of Minnesota Blue Shield) $7,899,825.12 has been paid for medical-surgical claims incurred by 216,516 subscribers who received Blue Shield benefits during this five-year period," Calvin reported.

"During 1951 Blue Shield gained 112,524 participants so that on December 31, 1951, 524,257 people were covered. Through the first four months of 1952 we have continued to grow with enrollment reaching 537,820 as of April 30. The Minnesota Medical Service Inc. is now tenth largest in the United States. This I think speaks well for the co-operation of the medical profession and the need for such a program."

"In 1951, $3,095,213 was paid to the medical profession—about a million dollars more than the previous year," Mr. Calvin concluded.

Changes in Personnel and Board Directors. Medical and other friends of J. Clifford Johnson will be interested in learning that he has accepted one of the top positions in the Public Relationship Department of the Pennsylvania Blue Cross plan with headquarters in Pittsburgh. Mr. Johnson came to Minnesota Medical Service Inc. from the Massachusetts Blue Shield plan in August, 1947, and has served as Manager of the Claims Department continuously since that time. His tenure of office has included the initial organization of the plan's operation and all the intermediate stages right up to the present high point in its development. The hosts of professional, business, office and other friends he has won throughout his service in Minnesota attest his qualifications to discharge the responsibilities of his new position.

Among other changes of prominent personalities have been the selections of Dr. C. M. Bagley of Duluth, and Dr. C. W. Moberg of Detroit Lakes as members of the Board of Directors, and Dr. N. H. Baker of Fergus Falls as a member of the Corporation. With deepest regret and reluctance, the Board of Directors accepted the resignations of Dr. W. A. Coventry of Duluth, and Dr. J. F. Norman of Crookston as members of the Board, and then appointed Dr. Bagley and Dr. Moberg, respectively, to fill their unexpired terms. Dr. Baker was selected to fill the vacancy in the corporate membership created by the death of Dr. W. L. Burnap of Fergus Falls. Included also in this same group of important changes was the appointment of Dr. E. C. Bayley of Lake City to fill the unexpired term of treasurer created by Dr. Coventry's resignation.

Doctors Coventry, Norman and Burnap have been closely identified with the Blue Shield plan since the earliest days of its inception. The entire medical profession is deeply indebted to each of these founders of Minnesota's prepaid medical care program. Even the professional stature of the physicians chosen to replace them is a testimony of the invaluable contributions they have made.

On April 30, 1952, the Board of Directors authorized the appointment of Mr. Ben Stephens, Jr. to develop a physicians' and public relationship program. Mr. Stephens comes to Minnesota Blue Shield with a strong background and wealth of experience in this field. He served as a Judge Advocate General Officer in the Army during the last war, spent two to three years in personnel, claims and administrative work in the Veterans Administration and devoted eighteen months to public relations, educational and executive duties in the Graphic Arts Industry. Mr. Stephens has already put in operation the initial practices and procedures of a program which is designed to secure and maintain a better understanding of the doctors and Blue Shield of their mutual problems. However, pending replacement of Mr. Johnson, Mr. Stephens temporarily will assume the duties of Acting Manager of the Claims Department.

Recent changes to perfect the inner workings of Blue Shield and its processing of claims has been the addition of two highly qualified and experienced registered nurses as claims auditors. Headed by a particularly capable registered nurse who has been with Blue Shield in the capacity of Chief Claims Auditor for over two years, and with three highly trained, experienced and efficient claims examiners, the most technical feature of the Blue Shield claims processing has been brought to a highly satisfactory level by the acquisition of these two additional nurses.

Hidden fees imposed by federal, state and local governments on a piece of merchandise as it passes through the economy—from its raw state until it reaches the ultimate consumer—constitute a large share of the cost. The taxes on a 10-cent candy bar amount to 3½ cents. Even the kids pay heavy taxes now.

INTERRELATIONSHIPS BETWEEN CARDIAC AND PULMONARY DISEASES

(Continued from Page 671)

vital capacity is usually markedly reduced. Of great importance is the slow expulsion of the air during the performance of procedure, expiration often requiring 5 to 10 seconds. The measurement of the vital capacity together with careful clinical and roentgenographic evaluation of the patient should enable us to distinguish primary cardiac disease with secondary pulmonary changes from primary pulmonary disease with secondary effects upon the heart.

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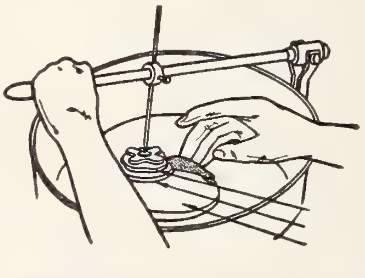

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Books Received for Review

A TEXTBOOK OF PATHOLOGY. Seventh Edition. E. T. Bell, M.D., Emeritus Professor of Pathology, University of Minnesota, Minneapolis. 1008 pages. Illus. Price $12.00, cloth. Philadelphia: Lea & Febiger, 1952.

SURGERY OF THE CHEST. A Handbook of Operative Surgery. Julian Johnson, M.D., D.Sc. (Med.). Professor of Surgery, School of Medicine and Graduate School of Medicine, University of Pennsylvania; and Charles K. Kirby, M.D., Assistant Professor of Surgery, School of Medicine, University of Pennsylvania. 387 pages. Illus. Price $9.00, cloth. Chicago: Year Book Publishers, 1952.

THE HUMAN PELVIS. Carl C. Francis, A.B., M.D. Assistant Professor of Anatomy, Department of Anatomy, Western Reserve University, Cleveland, Ohio. 210 pages. Illus. Price $5.00, cloth. St. Louis: C. V. Mosby Co., 1952.

THE STORY OF THE ADAPTATION SYNDROME. Hans Selye, M.D., Ph.D. (Prague), D.Sc. (McGill), F.R.S. (Canada). Professor and Director of the Institut de Médecine et de Chirurgie expérimentales Université de Montréal. 225 pages. Illus. Flexible cover. Montreal: Acta, Inc., 1952.

INTERNAL MEDICINE: ITS THEORY AND PRACTICE, originally ed. by John H. Musser, B.S., M.D., F.A.C.P., Late Professor of Medicine in the Tulane University of Louisiana, School of Medicine, New Orleans, La. 5th ed. ed. by Michael G. Wohl, M.D., F.A.C.P., Associate Professor of Medicine, Temple University School of Medicine; Chief of Nutrition Clinic, Philadelphia General Hospital; Chief of Endocrine Clinic, Temple University Hospital. With 80 Contributors. 1563 pages. Illus. Cost $15.00. Philadelphia: Lea & Febiger, 1951.

This new edition of Dr. John Musser's original book was well received and gave much enjoyable reading to the reviewer. The new popular two-column format is restful even after several hours of reading.

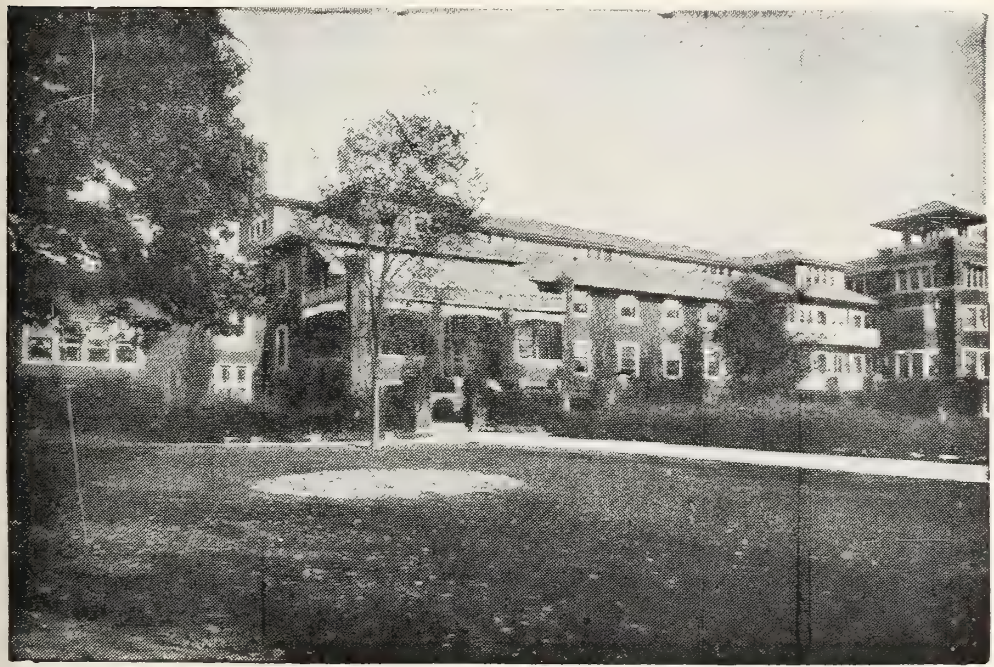
The various authors have divided their discussions of the individual diseases in a similar manner throughout the book. This makes it a more rapid job to use this book as a reference for reviewing one particular aspect of a disease.

The relative dearth of illustrations in this book is compensated for by the quality of those included and the good descriptions in the text itself. Suggested therapy is included for most diseases and is up to date. The use and misuse of ACTH and cortisone is well described for the appropriate diseases.

A new chapter on "Genetics and Medical Practice" has proved useful for a consultation during the period of reviewing this book. It gives ready help to those questions parents and friends of abnormal offspring often bring to the physician. The other new chapters are much needed and include: the general adaptation syndrome, antibiotics and chemotherapy, rehabilitation of the chronically ill, geriatrics and the psychosomatic aspects of medical practice.

This new edition should continue to be a favorite in the libraries of all practitioners—both general and specialists.

Donald W. Koza, M.D.



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IN MEMORIAM

WILLIAM A. KENNEDY

(Continued from Page 688)

special senses at the University of Edinburgh and the Mayo Clinic.

He was a former chief-of-staff of St. Joseph's Hospital in Saint Paul and a former member of the advisory board of the hospital. He was a member of the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the Saint Paul Clinical Club, the University Club of Saint Paul and the Serra Club. During World War I he went overseas as a medical officer with Base Hospital 26.

Dr. Kennedy is survived by his wife, Helen, and two daughters, Mary Francis and Mrs. J. Thomas Simonet. A brother, John, lives in Minneapolis, and a sister, Mrs. Fred Huntington, in Los Angeles.

MEDICAL ECONOMICS

(Continued from Page 681)

advances in the field of human relations comparable to the colossal strides made in technology. "Actually there is no reason why this should be so," Dr. Klotsche went on, "for our fundamental beliefs and ideals provide us with a basis for making it possible for human beings to live together harmoniously." That basis is the "belief that every individual possesses dignity and worth and has the right to be considered a person at all times regardless of race, color, creed, economic status or political belief."

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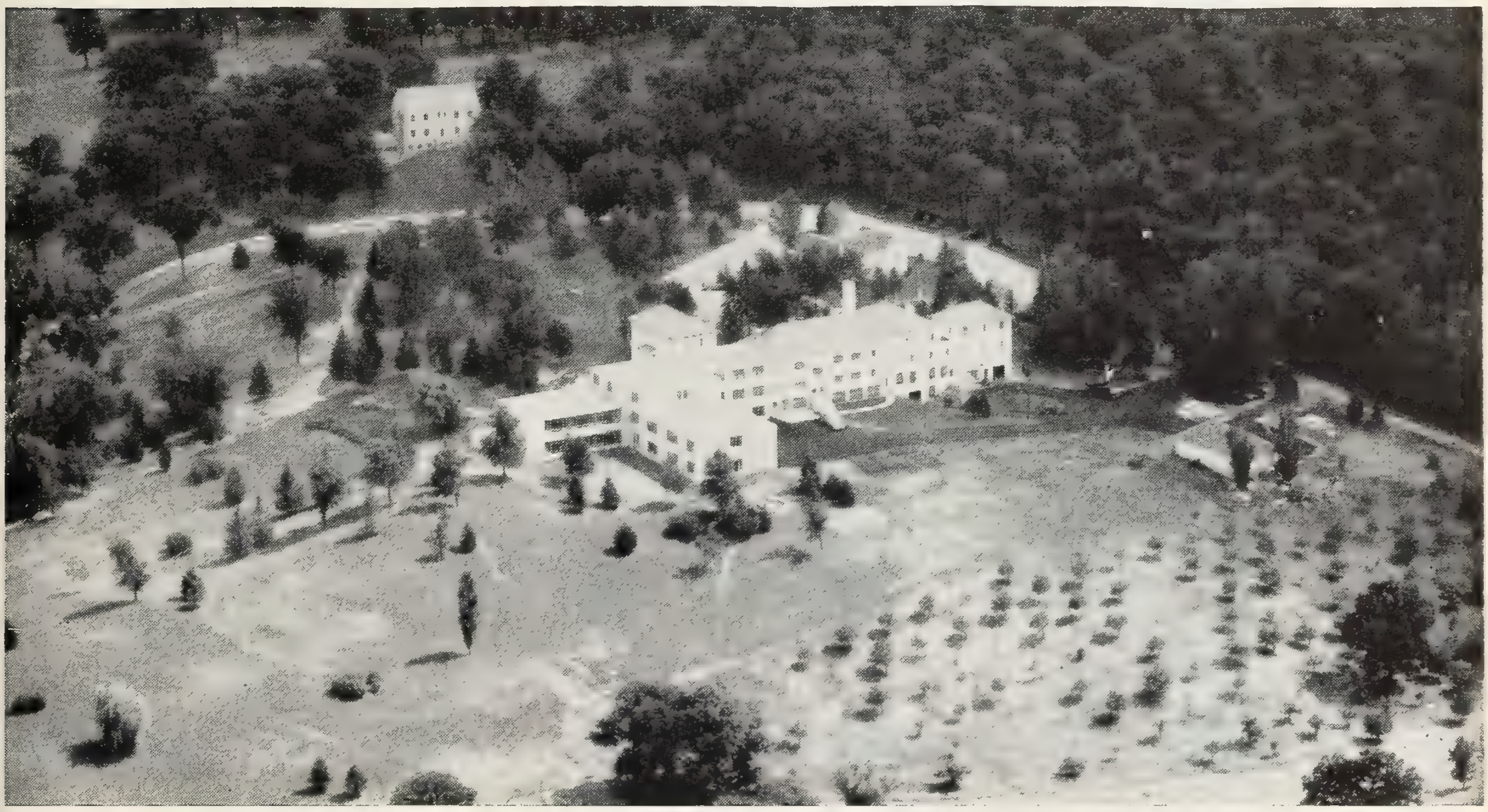

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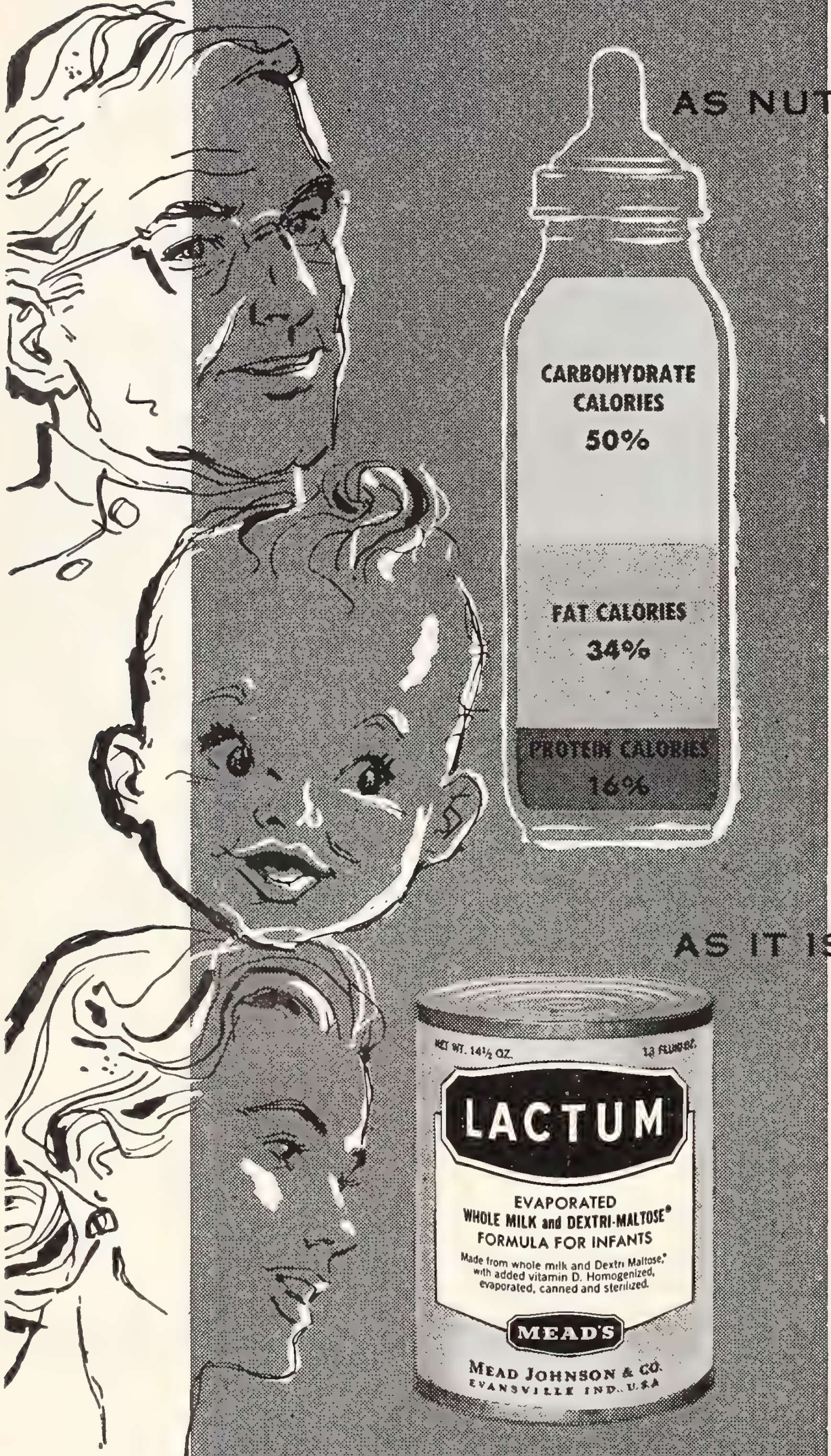
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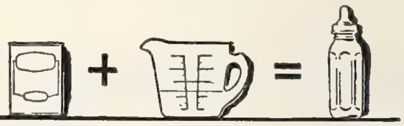
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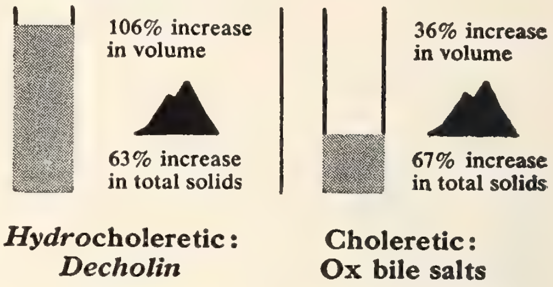

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Decholin Tablets, 3¾ gr. (0.25 Gm.),
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Decholin Sodium (brand of sodium dehydrocholate)
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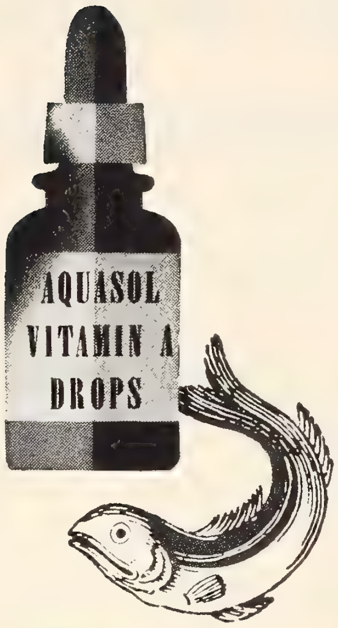

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Aqueous solutions of vitamin A . . . as available in Aquasol Vitamin A Drops . . . are more rapidly absorbed than vitamin A in oil solutions. [1-8]

It is suggested in patients with dysfunctions of the liver, pancreas, and biliary tract which interfere with utilization of fats; in celiac disease and certain other diarrheal states. [1,4,8]

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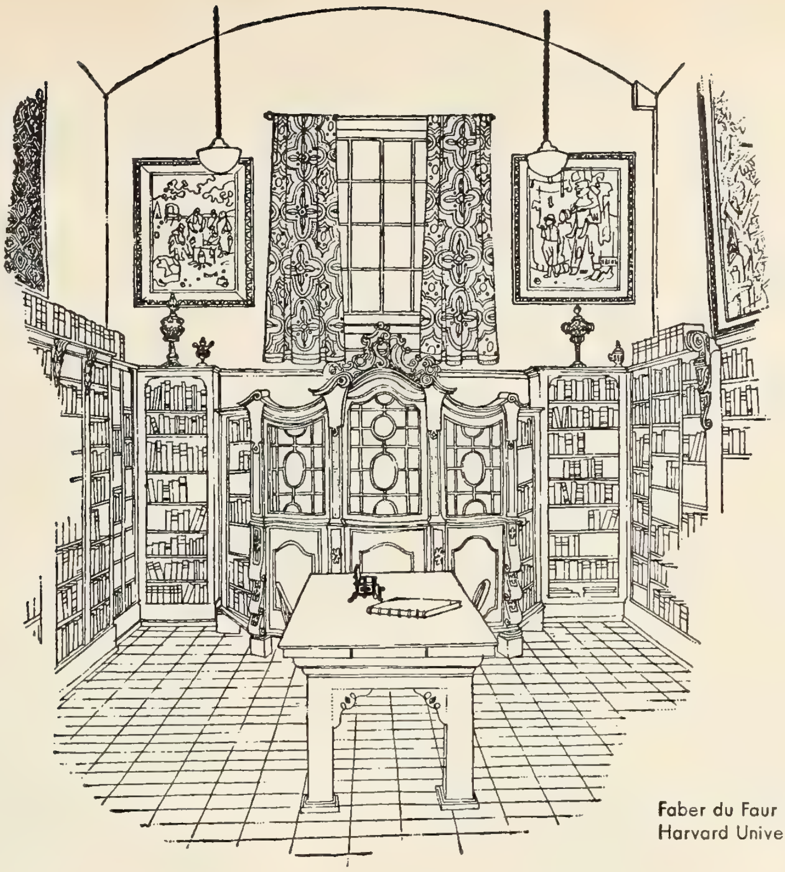
1. Lewis, J. M., et al.: Jl. Pediatrics 31:496, 1947
2. Kramer, B., et al.: Am. Jl. Dis. Child. 73:543, 1947
3. Halpern, G. R., et al.: Science 106:40, 1947
4. Nutrition Reviews 5:286, 1947
5. Clifford, S. H. and Weller, K. H.: Pediatrics 1:505, 1948
6. Popper, H., et al.: Gastroenterology 10:987, 1948
7. Davidson, D. M., et al.: Jl. Invest. Derm. 12:221, 1949
8. Nutrition Reviews 6:248, 1948

New aureomycin minimal dosage for adults —four 250 mg. capsules daily, with milk.



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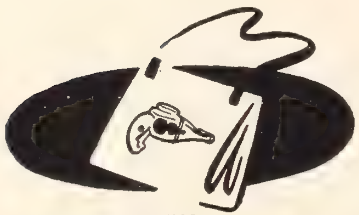

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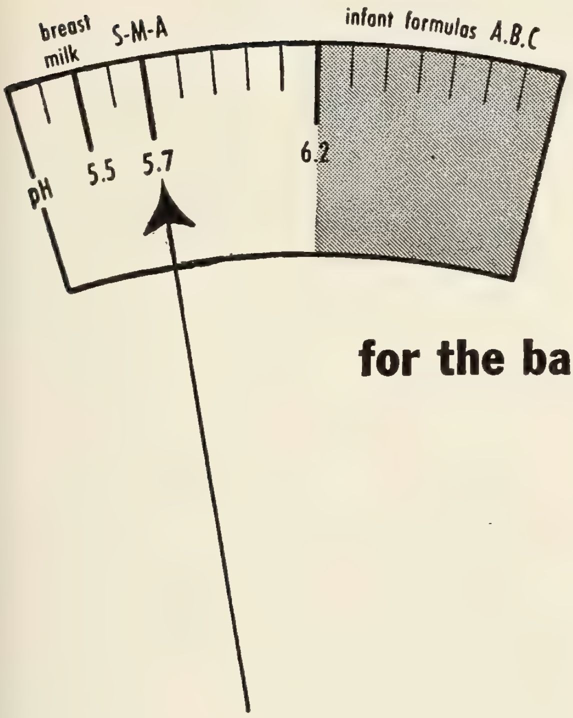
1. Kaufman, R., and Farmer, L. (1951), Norisodrine by Aerohalor in Asthma, Ann. Allergy, 9:89, January-February. **2.** Swartz, H. (1950), Norisodrine Sulphate (25 Per Cent) Dust Inhalation in Severe Asthma, Ann. Allergy, 8:488, July-August. **3.** Krasno, L., Grossman, M., and Ivy, A. (1949), The Inhalation of 1-(3′,4′-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March.

clinical tests prove S-M-A® is the only infant feeding formula that

- establishes a predominantly gram-positive flora—similar to the flora of the lower intestine of the breast-fed baby.[1]



- produces a stool with a pH "practically identical" with that of the infant fed human milk. Stools of babies fed other formulas are distinctly more alkaline (6.2 to 6.7).[1]

for the baby S-M-A means:

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2 *Lower incidence of constipation.* Formation of calcium soaps is inhibited; acid produced by fermentation stimulates peristalsis.

3 *Lessened susceptibility to diarrhea.* Lactobacilli inhibit overgrowth of 'colon' group bacilli.

4 *A stool typical of the breast-fed infant*—having a "buttermilk-like", rather than putrefactive odor.

5 *Vitamins more readily available, especially vitamin* B_{12}. Growth of putrefactive organisms which reduce amounts of vitamins available[2] is inhibited.

6 *Minimal danger of perianal dermatitis and diaper rash in the new-born.*[3]

REFERENCES

1. Barbero, G.J., Runge, G., Fischer, D., Crawford, M.N., Torres, F. E., and Gyorgy, P.: J. Pediat. *40*:152 (Feb.) 1952.
2. Watson, J.: Gordon Research Conf. Vitamins and Metabolism, 1950.
3. Torres, F.E., Romans, I.B., and Wheller, J.B.: A Study of Infantile Diaper Rash. To be published.

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Negative results with certain other forms of therapy have prompted many physicians to turn to NISULFAZOLE as a "last resort"—only to discover that it should have been their first approach to NONSPECIFIC ULCERATIVE PROCTITIS and COLITIS.

NISULFAZOLE frequently brings striking initial improvement in these cases . . . reduction in number of stools often occurring within the first 24 hours. Administered intrarectally, NISULFAZOLE exerts "focal" action at the site of the disease. The high incidence of remission of symptoms following NISULFAZOLE therapy is a source of gratification to physician and patient alike.

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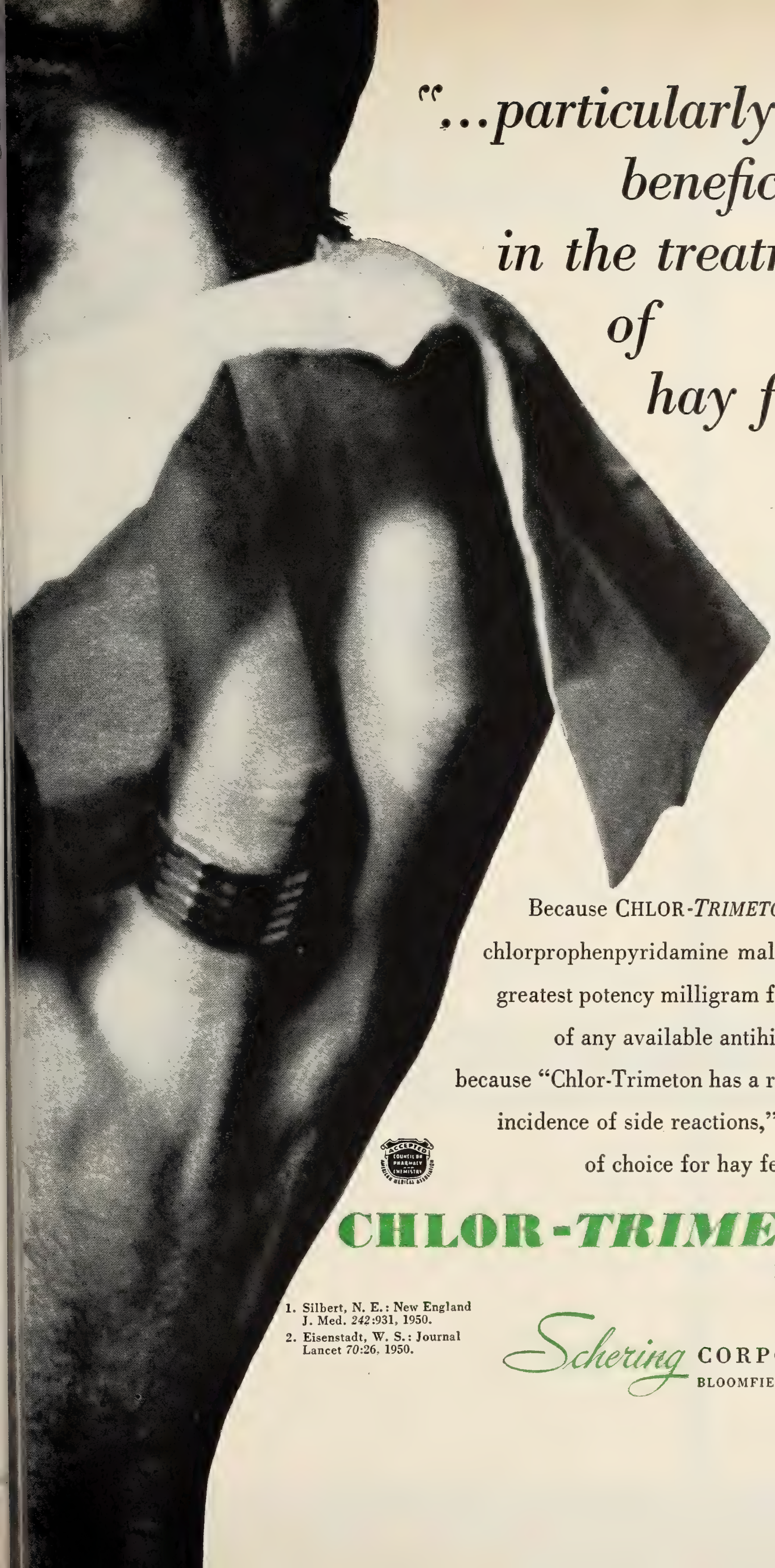

"...particularly beneficial in the treatment of hay fever."[1]

Because CHLOR-*TRIMETON*® maleate, chlorprophenpyridamine maleate, has the greatest potency milligram for milligram of any available antihistamine, and because "Chlor-Trimeton has a relatively low incidence of side reactions,"[2] it is a drug of choice for hay fever patients.

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maleate

1. Silbert, N. E.: New England J. Med. *242*:931, 1950.
2. Eisenstadt, W. S.: Journal Lancet *70*:26, 1950.

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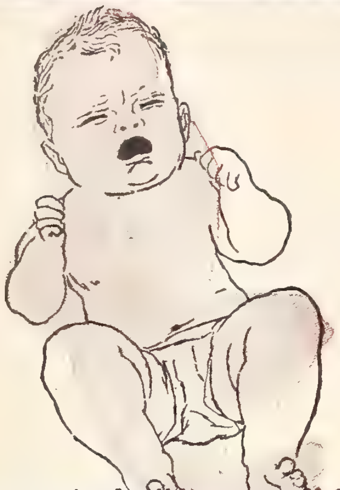
URINARY TRACT

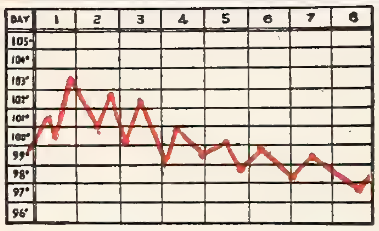
Pyelonephritis

1 Pyelonephritis occurs most often in the young child . . .

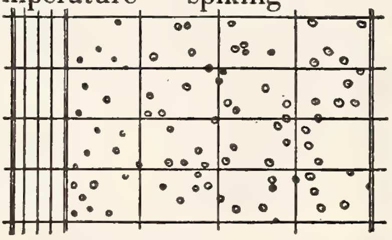


commonest in the "diaper-age" female

2 The onset is sudden, usually with a chill . . .

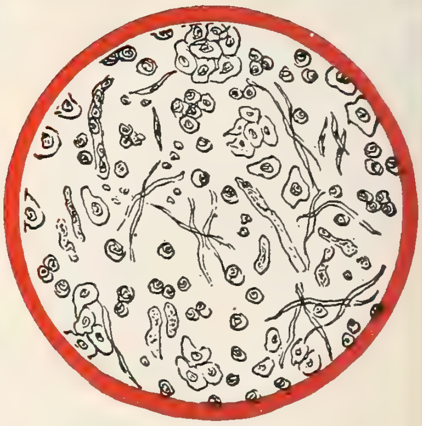


. . . temperature—"spiking"



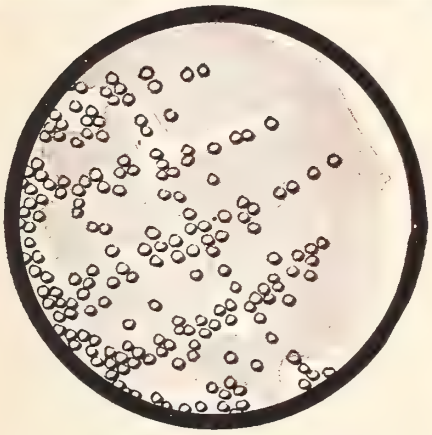
. . . white cell count—high

3 Always, pus cells and bacteria
pear in the urine



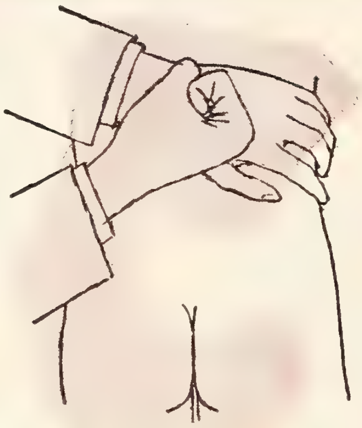
look for *clumps* of white cells in *catheterized* specimens

4 Culture determines pathogen. Mixed infection not uncommon.

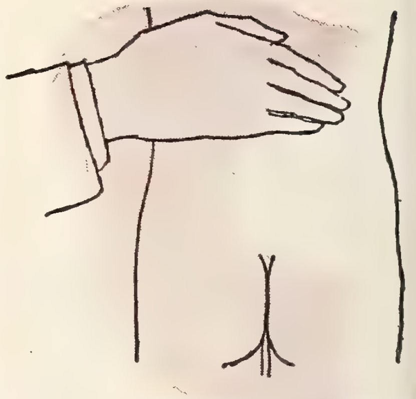


in 8 out of 10 children, colon bacillus invades

5 Sometimes there is tenderness over the kidney region . . .

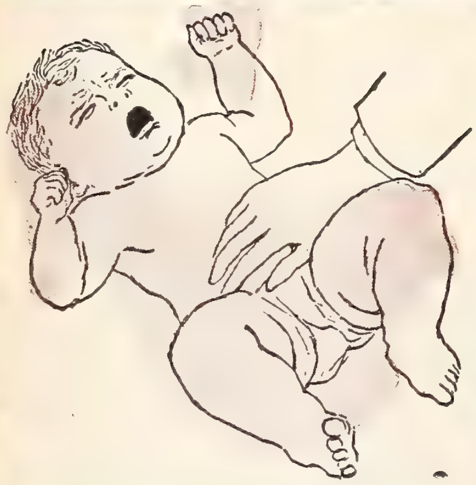


try the McKnight punch, or



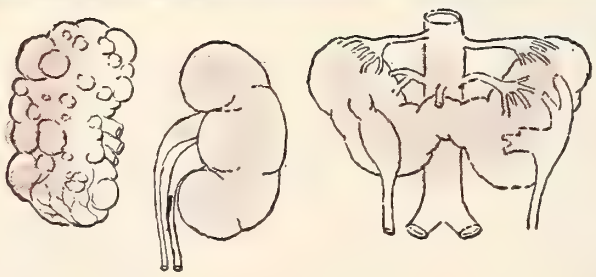
palpation in C-V angle

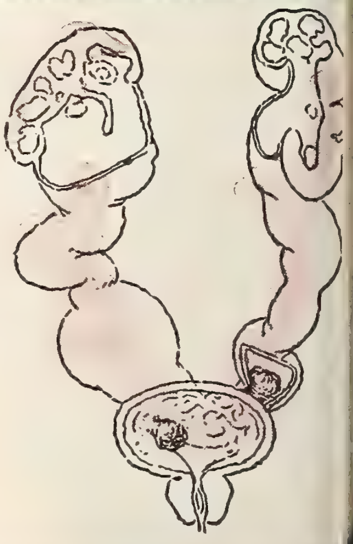
6 . . . or abdominal pain and rigidity



suggestive of an acute abdomen

7 Look for a cause of urinary stasis.





in children, 75% have congenital malformation . . . others may have calculus, foreign body, neoplasm, ureteral spasm.

NFECTIONS

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The problem was immense; the requirements were rigid; the need was great. Borden took up the challenge, and after years of research and many trials and clinical tests the goal was accomplished. BREMIL was made available to the profession.

BREMIL is the first and, to date, the *only* infant food to achieve all of these prescription requirements:

. . . conforms to the fatty acid pattern of human milk
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. . . has a calcium-phosphorus ratio (guaranteed minimum 1½:1) adjusted to the pattern of human milk to prevent tetany
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"*. . . trustworthy nonsodium-containing salt substitute*"[2]

—lends the desired salty flavor to foodstuffs, and can be used in all salt-free and low sodium diets.

CONSTITUENTS: Potassium chloride, ammonium chloride, potassium formate, calcium formate, magnesium citrate and starch.

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NEOCURTASAL
Iodized
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potassium iodide 0.01%)

Neocurtasal, trademark reg. U. S. & Canada.

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Both available in 2 oz. shakers and 8 oz. bottles.

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1. Merryman, M. P.: The Use of the Low Sodium Diet. *South Dakota Jour. Med. & Pharm.*, 2:57, Feb., 1949.
2. Heller, E. M.: The Treatment of Essential Hypertension. *Canad. Med. Assn. Jour.*, 61:293, Sept., 1949.

*Author unidentified. From Mencken, H. L.: A New Dictionary of Quotations. New York, Alfred A. Knopf, 1942, p. 1057.

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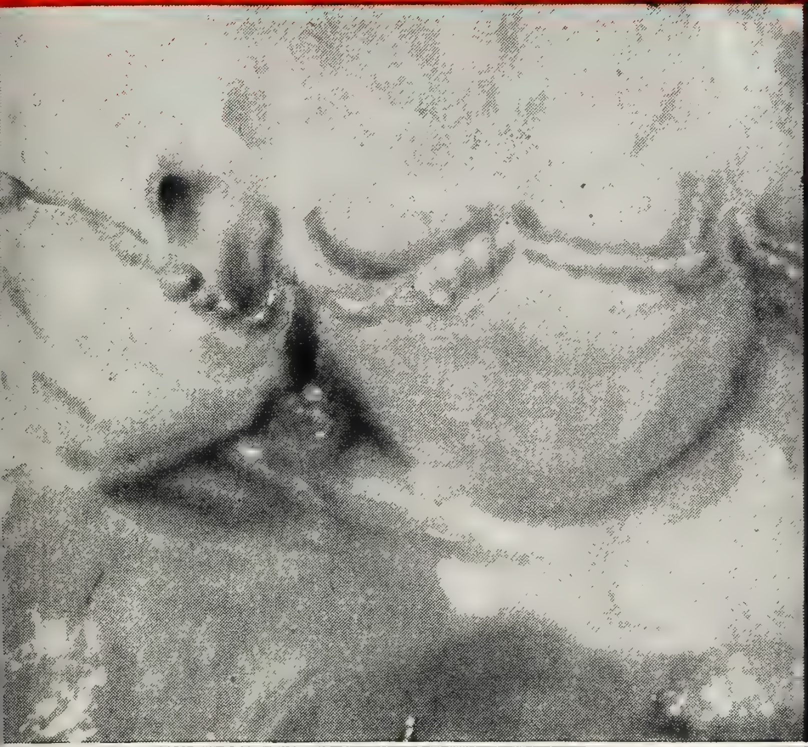
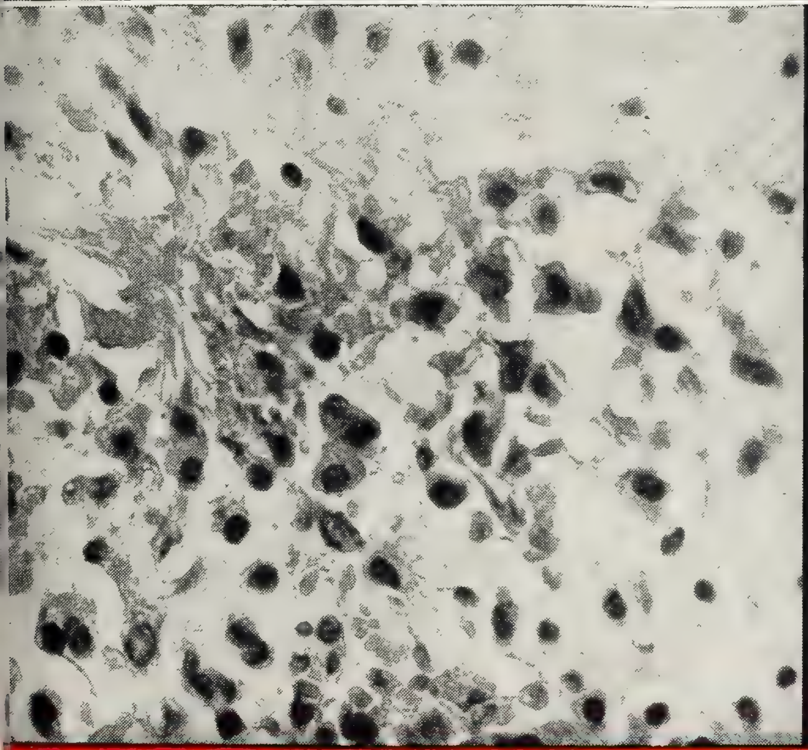
response in rheumatic fever



q. Does cortisone influence the heart lesions of rheumatic fever?

a. Early cortisone administration suppresses and in some cases may even prevent serious cardiac damage.



q. What effect does cortisone have on acute rheumatic fever?

a. Often within 24 hours after cortisone therapy, the severely ill, toxic patient appears alert and comfortable; and within one to four days, temperature drops to normal, appetite increases, and polyarthritis subsides.

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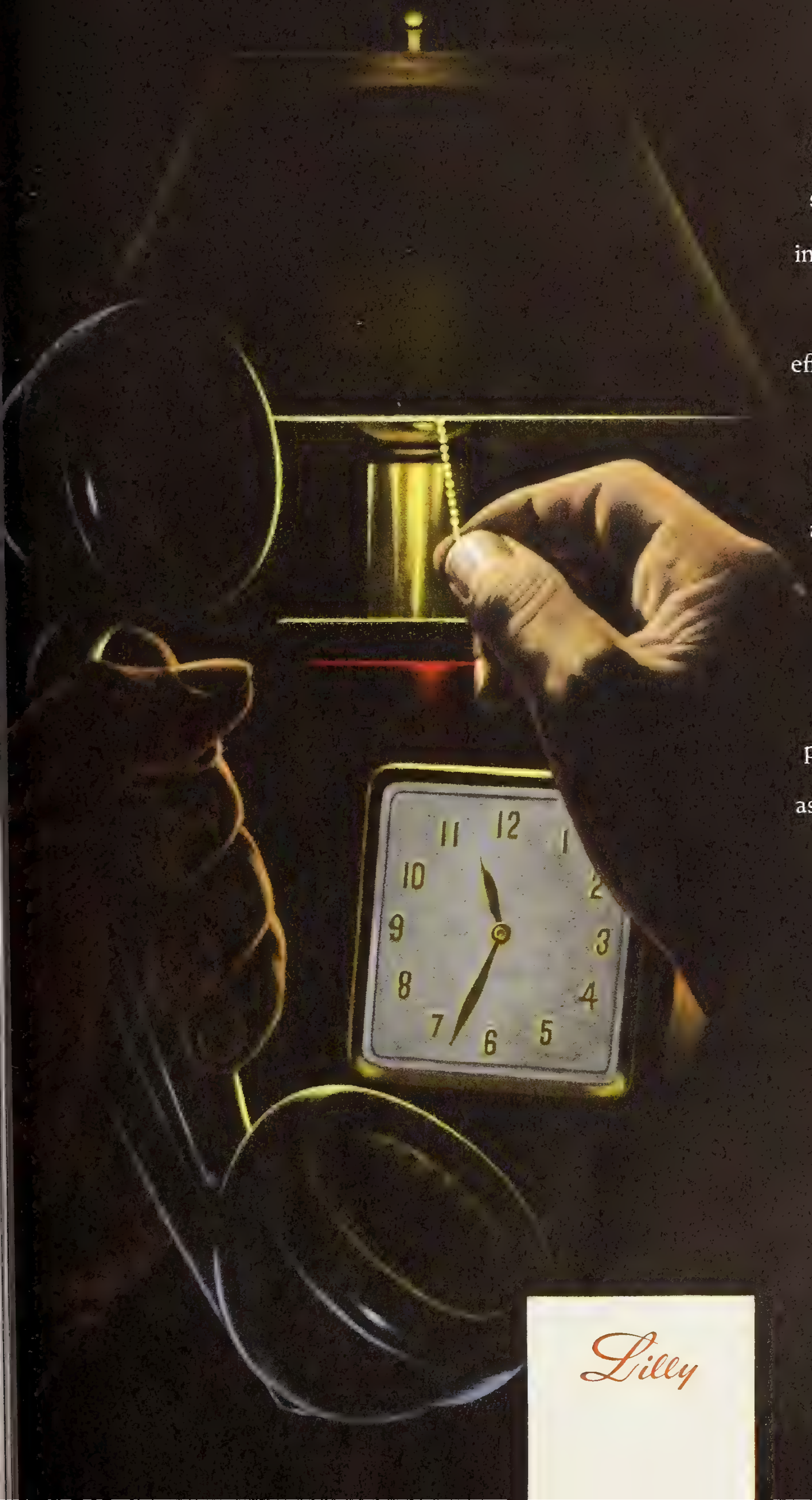

His patients sometimes forget that Dr. Harris also has to rest. Some of them seem to take it for granted that he is as inexhaustible as is his willingness to help. However, because of today's more effective medicines, his patients are getting well faster and night calls are fewer. Recently, therefore, Dr. Harris has been able to take an occasional much-needed rest and still treat more patients successfully than ever before. Furthermore, even long-established pharmaceuticals are gaining in usefulness as a result of such current research as . . . →

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NPH Iletin (Insulin, Lilly)

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 **August, 1952** **Number 8**

THE PRACTICAL ASPECTS OF THE Rh FACTOR

EDITH L. POTTER, M.D., Ph.D.
Chicago, Illinois

Rh and Hr are collective names for groups of antigens, some of which are attached to all human blood cells. There are several Rh subgroups (Rh′, Rh_o, Rh″ are the principal ones) and for each there is a reciprocal Hr group; if an individual lacks any Rh subgroup, he possesses the equivalent Hr subgroup instead. Rh and Hr subgroups are inherited by means of allelic genes. Since all genes are present in pairs, an individual may be homozygous or heterozygous for any of the Rh-Hr subgroups; for instance, his blood cells may exhibit the presence of only Rh′ and no Hr′; he is then homozygous for Rh′. If they show the presence of both, he is heterozygous; or if they show only the presence of Hr′, he is homozygous for Hr′. This is also true for all other subgroups.

In the Race-Fisher system of terminology C=Rh′, D=Rh_o, E=Rh″, c=Hr′, d=Hr_o, e=Hr″.

The Rh-Hr type of an individual is determined by testing his blood cells with serums derived from human individuals who have become immunized to specific Rh or Hr antigens. Antiserums for the three most common Rh subgroups—Rh′, Rh_o and Rh″—and for Hr′ and Hr″ are available from commercial sources. Serum to determine the presence of Hr_o is not available.

The two occasions when specific knowledge of subgroups is most valuable are (1) in cases of disputed paternity, and (2) in those instances where it is desirable to know whether the husband of an immunized woman is homozygous or heterozygous. In the former case knowledge of Rh-Hr subgroups adds considerably to the possibility of including or excluding the likelihood of parentage when information concerning genetic similarities or dissimilarities of the child and putative father is being considered.

In determining the status of the husband of an immunized woman, the Rh_o subgroup is the one about which information is usually desired. No anti-Hr_o serum is available for direct determination of homozygosity or heterozygosity and it is necessary to take recourse to the fact that a single Rh subgroup rarely exists by itself. Rh_o is usually inherited in combination with Rh′ or Rh″, or both, and consequently by testing for the homozygosity or heterozygosity of Rh′ or Rh″ it is possible to conclude that an individual is probably (although not positively) homozygous or heterozygous for Rh_o.

The subgroup Rh_o is the only member of the Rh-Hr complex that is commonly antigenic. In over 300 immunized mothers of erythroblastotic infants observed at the Chicago Lying-in Hospital in the past twelve years only two have been immunized to any of the other subgroups; these two were immunized to Hr′.

Rh_o was the variety of Rh first discovered, and it is the one to which reference is ordinarily made when a person is stated simply to be Rh-positive or Rh-negative. This is the way in which the term will be used in this paper. Since it is the only variety that has any appreciable clinical significance, it is adequate to test for this one subgroup in routine clinical practice.

Because it is possible for any Rh-negative in-

From the Department of Obstetrics and Gynecology, the University of Chicago and the Chicago Lying-in Hospital.

The data on which this paper was based were obtained in part from studies partly financed by the Douglas Smith Foundation for Medical Research of the University of Chicago.

The Arthur H. Sanford Lecture delivered at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

dividual to become immunized to Rh, no transfusion should ever be given without first determining the Rh status of the recipient; if the blood is found to be Rh-negative, he or she should be given only Rh-negative blood. It was learned after the last war that about half of the Rh-negative soldiers who had received transfusions had developed antibodies against Rh. If those who were immunized are transfused again with Rh-positive blood, they may be expected to develop severe and possibly fatal transfusion reactions.

It is even more serious to give Rh-positive blood to an Rh-negative female. This need not be in the form of transfusion, for as little as 5 cc. may induce the production of antibodies. Immunization established at any age is permanent, and blood given a small girl may prevent her bearing normal children many years later. Only in the most dire emergency, in the face of exsanguinating hemorrhage with no possibility of obtaining blood of appropriate Rh character, would it be forgivable to overlook the dire consequences that might ensue from giving Rh-positive blood to an Rh-negative individual. *Under no other circumstances should it be countenanced.* If a patient has had a previous transfusion or lost a baby, the possibility that immunization may exist must be considered and the need for blood weighed against the immediate danger.

Pregnancy also may constitute a means of establishing immunization, presumably by rupture of fetal vessels within villi with escape of fetal blood into the maternal circulation. Although about 50 per cent of all individuals become immunized by one or a few transfusions, only about 5 per cent of women become immunized by one or several pregnancies.

Ninety-five per cent of Rh-negative women have repeated pregnancies without becoming immunized. The specific reason why so many women escape is unknown although it is probably a combination of low reactivity on the part of the expectant mother and/or failure of fetal blood to excape into the maternal circulation.

If immunization is once established, all Rh-positive children subsequently conceived ordinarily suffer from erythroblastosis. A first-born child is rarely affected unless the mother has had a previous abortion or transfusion. Since there is no reason to believe that immunization may not be established as readily in a first pregnancy as any other, in order to explain the absence in a first pregnancy it must be assumed either that immunization does not reach a degree during a single pregnancy sufficient to affect the child or that antibodies are produced only at the termination of pregnancy. In either case it is evident that the child will ordinarily be affected only when antibodies are present early in pregnancy as a result of some previous assault. Consequently the earlier in pregnancy that examinations for antibodies can be made, the greater will be the significance of the findings; for that reason determinations should always be made on the first prenatal visit. If antibodies are absent on that occasion, the blood should be re-examined during the eighth month of pregnancy. If found then for the first time, the child will ordinarily be only very mildly affected. In a subsequent pregnancy the probability of more severe involvement is very great.

If antibodies are present in the first trimester of pregnancy, the child, if Rh-positive, is almost certain to be moderately or severely affected.

Antibodies of any variety and in any titer that are present early in pregnancy are significant and an affected child must be anticipated. Different methods of determining antibodies yield different titers, and even in the same laboratory tests made on the same blood by the same method may vary on different occasions. Consequently it is impossible to make definite statements concerning the prognostic value of any given antibody titer, but in general a range of 1:1 to 1:10 is associated with a considerably better outlook for the infant than one appreciably higher. However, we have seen fatal cases of erythroblastosis in women whose antibody titer remained from around 1:1 to 1:4 throughout pregnancy.

In our experience the level of antibodies during the first trimester is of much more significance than any change of titer that may occur later and it is on this that greatest weight is placed in giving a prognosis.

Although some investigators have reported that a rise of titer never occurs during a pregnancy in which the child is Rh-negative, this has not been true in our experience. Rising titers have occurred in several women carrying Rh-negative fetuses, and a titer of 1:5,120, which is as high as we have ever obtained by our methods, was present at the end of pregnancy in one patient with an Rh-negative infant.

Antibody titers usually increase for the first two to three weeks after the termination of pregnancy; they may remain indefinitely at a high level or they may gradually diminish. Antibodies rarely disappear, but if they do, they almost invariably reappear early in a subsequent pregnancy.

At present there is no method of abolishing the immune state when it has once been established. All means so far suggested have proved to be of no value. It is too soon to know for certain the effect of ACTH and cortisone although preliminary investigations do not seem hopeful. In order to attempt to prevent initiation of immunization, labor and delivery in all Rh-negative women should be conducted in such a way that every attempt is made to avoid the possibility of fetal blood entering the maternal circulation. Manual removal of the placenta is always accompanied by rupture of fetal vessels and fetal blood almost certainly enters the maternal circulation. Mechanical interruption of early pregnancy should be recognized as a common cause of immunization.

Abortions do not occur because of Rh immunization, but abortions, especially those induced or terminated by mechanical means, permit entrance of fetal cells into the maternal blood stream and may be the cause of immunization.

Pregnancy should rarely if ever be terminated prematurely because of maternal immunization, in the belief that to shorten the period during which the fetus is being subjected to the action of antibodies lessens the severity of the disease. In our clinic we have been opposed to early termination for many years because we have seen no good, and much harm, come from it. Diamond, who was once in favor of the procedure, now speaks vehemently against it, stating that of surviving infants showing clinical evidence of kernicterus, all have been premature.

When antibodies are present in the maternal blood and there is a possibility of an erythroblastotic child being delivered, the baby should be immediately examined after birth. If it is Rh-positive and the hemoglobin of the cord blood is less than 14 gm., it is our practice to do an immediate replacement transfusion. If antibodies are known to be present in the maternal blood, a Coomb's test gives no additional information of value. If for any reason the state of the mother's blood is unknown, a positive Coomb's test on cord blood will prove that antibodies derived from the maternal circulation are attached to the fetal blood cells. Maternal immunization to a blood factor (usually Rh_o) which is similar to one possessed by the fetus, plus anemia of the infant, are the two requisites for a diagnosis of erythroblastosis.

Treatment of choice of an affected child is immediate exchange transfusion, using 500 cc. of Rh-negative whole blood, followed by repetition of the exchange as many as three or four times in the presence of deepening jaundice, rising bilirubin levels or any other untoward symptoms. With such a method, Diamond reported treating over 200 infants without a fatality or case of kernicterus. Although exchange transfusions seem to give far better results than any other form of treatment, they are not without hazard to the infant in unskilled hands, and every attempt should be made to have immunized patients delivered as far as possible in hospitals where an experienced transfusion team is available.

Infants with erythroblastosis often go through a non-regenerative phase of blood formation for varying lengths of time after birth. It may be necessary to give small additional amounts of blood at four to six weeks of age during the period when the cells given by exchange transfusion are being destroyed. The further course of these infants is usually uneventful.

The incidence of kernicterus—permanent brain damage—varies according to treatment and to the severity of the disease. It is related to persistant high bilirubin levels manifested by deep prolonged jaundice. In the absence of severe jaundice it practically never occurs. The repetition of the exchange transfusions is primarily for the purpose of preventing postnatal blood destruction and hyperbilirubinemia.

A hemorrhagic tendency often accompanies severe erythroblastosis. For this reason vitamin K is given at birth and repeated every twenty-four hours for several days. Except for iron and vitamin K, no medication has been shown of value.

In general, Rh-negative women who have once lost a child from erythroblastosis should be advised against future pregnancies because of the great likelihood of repetition of the outcome. However, therapeutic abortion because of Rh-immunization is not justified. It is impossible to be certain of the outcome of any pregnancy, and even after several deaths or stillbirths there is still

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EMERGENCIES OCCURRING DURING ANESTHESIA—THEIR TREATMENT AND PREVENTION

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AN EMERGENCY may be defined as an unexpected serious happening demanding immediate action. Almost every emergency occurs when it is unexpected. A normal physiologic response may become an emergency if there is lack of understanding of the factors involved. This fact suggests the means of prevention. Anticipation of difficulties will prevent most emergencies. Only continued advances in knowledge and a frank recognition of the hazards of faulty administration will reduce the incidence of fatalities and morbidity. The American Society of Anesthesiologists has fostered the development of Study Commissions in the various component societies for the express purpose of analyzing emergencies which occur during anesthesia. By frank discussion of the management much valuable criticism has been made available.

Some Physiologic Considerations

The unexpected serious happenings which demand immediate action produce fundamental physiologic changes, the most important being anoxia, hypercapnia, and hyperthermia. Physiologists have shown that there are four types of anoxia.

1. Anoxic anoxia, or lack of oxygen in the tissues produced by interference with the oxygenation of the pulmonary blood.

2. Stagnant anoxia or lack of oxygen in the tissues produced by faulty transport of oxygen carrying blood.

3. Anemic anoxia, or lack of oxygen in the tissues produced by faulty carrying power of the blood, and,

4. Histotoxic anoxia or lack of available oxygen in the tissues produced by the inability of the cell to utilize the oxygen brought to it by the blood.

Hypercapnia or the increased carbon dioxide content of the blood may be caused by increased production or deficient elimination of carbon dioxide.

Likewise hyperthermia or abnormally high temperature of the body may be caused by increased heat production or deficient heat elimination.

Emergencies which produce one or more of these three alterations of cellular physiology are always serious and may be fatal.

Some Common Emergencies During Anesthesia

1. Obstruction of the natural airway by soft tissues such as the relaxed tongue or by anatomical alteration during neck operations is a source of danger which is frequently unexpected. Endotracheal anesthesia has done much to eliminate this emergency. There is no substitute for an adequate knowledge of the upper airway and its proper application in providing a patent one. The anatomical relationships are different in the awake and in the anesthetized state. The anatomy of the glottic opening and its relation to other structures is still a mystery for many due to the lack of emphasis of this subject in our medical education. In tonsillectomy, some doctors do not seem equally interested in providing a patent airway while removing the tonsils. Unless the glottis and base of the tongue are lifted forward and away from the posterior pharyngeal wall, aspiration of blood and tissue will be almost unavoidable. Both soft tissue obstruction and aspiration of blood may cause fatal anoxia.

2. Vomiting during induction of anesthesia with aspiration of vomitus may readily occur especially when the stomach contains partially digested food and may produce a crisis which should always be borne in mind. Obstetrical patients and patients with bowel obstruction are frequently in peril from this cause. Treatment begins with prophylaxis. Eating should be curtailed in all obstetrical patients who are in labor. All patients with bowel obstruction, and this especially includes babies for whom a Ramstedt operation is planned, should have a stomach tube in place and an empty stomach before anesthetic agents are administered. Aspiration of vomitus

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may be fatal. In very ill and weak patients with bowel obstruction, regurgitation of stomach contents with fatal or near fatal anoxic anoxia is an emergency familiar to all. Besides gastric decompression preoperatively, Fowler's position during induction, instantly available suction, and endotracheal intubation are indicated. When aspiration of vomitus has occurred, immediate endotracheal or endobroncheal aspiration is indicated, either by bronchoscopic aspiration while the patient is asleep, or by endotracheal intubation, especially in the patients whose cough reflex is ineffective. Delay in aspiration usually gains nothing. Atelectasis, pneumonitis and in some a fatal outcome from anoxia immediately or in the early postoperative period may result. It should be pointed out that the immediate relief of bronchial occlusion usually prevents atelectasis from developing from the absorption of the respiratory atmosphere. A delay of 30 minutes may allow irreversible atelectasis to develop.

3. Apnea from relative or absolute overdose of depressant is a most critical and demanding situation. Anoxic anoxia may develop in a matter of seconds if the respiratory functional capacity is limited. Whenever active respiration is deficient or absent, passive respiration should be instituted. Almost invariably, unless anoxia, hypercapnia or hyperthermia has wrecked the respiratory reflexes, passive respiration, until the drugs have been eliminated, will suffice. Stimulating drugs have little place. Supplying the basic physiologic requirements will maintain a viable state better than a variety of stimulating drugs. The simple plain common-sense practice of medicine will prove very adequate. When the cause of apnea is known to be reversible, one need not become alarmed. If anoxic damage is present then there is genuine cause for alarm.

4. Four factors may produce stagnant anoxia, namely, failure of cardiac output, reduction in blood volume, collapse of peripheral resistance, and decrease of viscosity.

(a.) Failure of cardiac output may result from cardiac arrhythmias, inadequate venous blood return, or failure of the respiratory support of circulation. Prevention is again the best cure. Preoperative digitalis or quinidine and oxygen for the cardiac irregularities has aided in the management of this type of cardiac disturbance. During the course of anesthesia cardiac arrythmias may occur. Intravenous procaine is of value when the usual measures and oxygen have failed to restore a satisfactory cardiac status. Splinting the extremities by wrapping with elastic bandages and the Trendelenburg position may be used to help venous return. Maintenance of normal pressures within the thoracic and abdominal cavities will do much to retain the respiratory support of circulation during operations.

(b) Reduction of blood volume should be insured against by the replacement of blood loss before the compensatory power of the circulatory system has been overtaxed. In cases where the need for blood may be acute and venipuncture hard to accomplish when hypotension exists, the prophylactic intravenous route should be established before the hypotension from blood loss occurs. In infants especially the cutdown and insertion of a polyethylene tube may be life saving.

(c) Peripheral resistance must be maintained by the use of the vasopressor drugs, the tourniquet, or by elastic bandage splinting of the extremities. Spinal anesthesia in cases where decreased peripheral resistance would be harmful or fatal should always be preceded by the establishment of the prophylactic intravenous avenue for the injection of vasopressor drugs. This especially includes cesarean sections where hypotension and anoxia may prove fatal to the mother and child, and in operations on patients having heart disease, particularly in those having coronary insufficiency.

(d) Decreased viscosity may contribute to alarming hypotension and anoxia. The use of concentrated serum albumin has proved of value.

5. Anemia is a potent cause of anoxia—sudden hemorrhage is frequently a major factor in its production. This type of emergency demands blood replacement and often with speed. In the presence of a failing heart, intra-arterial transfusion is a method of treatment but it is to be employed with caution and used only after the other methods have failed.

6. Perhaps the most dramatic emergency occurring during anesthesia is the convulsion. From a list of possible etiologic factors only four are constantly incriminated; anoxia, hypercapnea, hyperthermia, and strong irritant anesthetic agent. The convulsion usually occurs in very ill patients, especially children, with fever, acidosis, and severe toxic states. The hypercapnia and hyperthermia are caused by both excess production and decreased elimination. Deficient transport by the circulatory system and interference with the

elimination by the respiratory system are factors in heat and carbon dioxide retention. It should be noted that respiratory obstruction or depression by deep anesthesia may strongly contribute. This emergency is highly fatal if untreated and demands instant therapy. The factors producing the convulsion should be reversed without delay. Immediate removal of the offending anesthetic agent, increasing the elimination of heat from the body, restoration of the acid-base balance toward normal with Buffer solution and termination of the convulsive movements with dilute pentothal cautiously given, is demanded. *Do not temporize.*

Principles of Prevention of Emergencies

In the management of emergencies during anesthesia, preventive policies are of much more value than therapeutic measures. There are many principles, not all of them pertaining to the practice of medicine, that are worth mentioning.

1. Emergencies may occur at any time but they occur most frequently during induction of anesthesia and recovery and particularly during rapid inductions. Concern should be given to their prevention and treatment especially in the very young and old, seriously ill and debilitated patients.

2. Consultation with the surgeon, internist, or other member of the surgical team does much to alert the anesthesiologist to the possible emergency conditions which may arise. Consultation is definitely worthwhile. The surgeon sometimes forgets that his behavior is a source of inspiration to the whole operating team. Irrational, impulsive, or behavior dominated by an unbridled temper does not generate intelligent response to the demands of an emergency.

3. Haste, poorly co-ordinated planning, emotional display, and a compromising attitude have no place in the operating room and prevent the establishment of a sound program for the prevention of emergencies. Nervous tension is a most unnecessary biproduct and usually leads to damaging confusion. The calm and collected attitude of the experienced surgical team is essential to a rational appraisal of any emergency. A free exchange of constructive thought should be continually sought, religiously fostered, and zealously guarded.

4. A constructive educational program shared by all members of the operating team is essential. The high ideals of The Master must dominate our thinking, not the expediency of the present day rush. No drugs should be administered by inadequately trained personnel. Emergencies occur more frequently where a knowledge of physiology and pharmacology of anesthetic drugs is dimly understood. The practice of anesthesiology becomes loaded with possible emergencies wherever the ordinary probabilities remain unexpected. The more the complications are anticipated and prepared for the fewer emergencies will occur.

Our Professional Obligation

Almost all discovery and research in anesthesiology has been done by doctors and we can all take just pride in the contributions of our colleagues in this field of medicine. Future progress and the assimilation of anesthetic facts depend on the wholehearted support of all practicing doctors. What you do to maintain the dignity of the practice of anesthesiology will be reflected in decreasing emergencies, fatalities, and morbidity. What you do to develop the practice as one which will attract new recruits will do much to alleviate the shortage of anesthetists, both physicians and nurses. Probably the shortage of anesthetists in the small hospitals will persist until more physicians are trained to do the work and to train others. It is our obligation to advise hospitals about necessary equipment and to see that it is maintained in proper working condition. That anesthetic drugs will continue to be administered can be taken for granted. Only through increased knowledge and intelligent co-operation and application can the emergencies be prevented and corrective treatment instituted. *Most anesthetic emergencies are preventable.*

PARTICIPATION IN PUBLIC HEALTH PROGRAMS

Public health programs should be so organized that the people who have the problems are given an opportunity to plan and contribute to the solution. Too often there is little participation by the individual, who passively receives the services. In a sense, health officials should aim to make every citizen a public health worker, at least in his own behalf.—Joseph W. Mountin, M.D., *Public Health Reports,* April, 1952.

EMERGENCIES OCCURRING DURING SURGICAL PROCEDURES

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AN EMERGENCY is defined as "a sudden condition calling for immediate action." When this definition is applied to emergencies occurring during surgical procedures, certain generalities may be drawn:

1. The surgeon and his associates must be capable of rendering whatever immediate action is necessary to restore the situation to normal and prevent a catastrophe. The operating team must be *prepared, trained and equipped* to cope with any emergency that may arise.

2. Although emergencies may appear with alarming suddenness, they may be anticipated and avoided. The poor surgeon operates in an almost constant state of emergency. The skilled surgeon makes the difficult look easy, primarily by avoiding trouble.

Hemorrhage

Hemorrhage is the commonest emergency encountered during operations. Its control is a routine part of any surgical operation and is familiar to all of us. However, there are a few points in regard to the prevention and management of hemorrhage that deserve our consideration. No apology need be made for the reemphasis of these details, for it is only by conscious effort that faulty habits are corrected, and the practice of sound surgery becomes second-nature with us.

We will list, without detailed comment, certain basic principles that we feel are particularly important in the prevention and management of hemorrhage during operations:

1. There is no substitute for *adequate anatomical exposure* in the prevention of hemorrhage. When major vessels are to be divided they should be clearly demonstrated, ligated or clamped, and then divided under direct vision.

2. Division of a vessel between *previously placed ligatures* is preferable in many situations.

3. One should select and become accustomed to the use of the finest possible ligatures. Bulky, heavy ligatures cannot be firmly seated about a vessel, and they tend to slip easily. Size 000 catgut is satisfactory for routine use; 0000 and 00000 catgut is nice for more delicate procedures. It is occasionally necessary to use 00 catgut for heavier ligatures. In general, somewhat smaller sizes may be used if one prefers silk or cotton.

4. It is wise to use a *pneumatic pressure cuff* to obtain a dry field during operations on the extremities. There are very few contraindications to the use of a pneumatic pressure cuff. *Do not use a tourniquet:* it is a dangerous weapon and should be kept only as a museum-piece.

5. When division of an artery is incomplete, the vessel must not be ligated in continuity. The injured segment must be divided or excised to prevent reflex vasospasm and secondary erosion.

6. Ligation of a large artery, particularly one to an extremity, should be accompanied by simultaneous ligation of its companion vein. There is one exception to this rule: if the distal stump of the artery continues to pulsate after division, it may be assumed that collateral circulation is already adequate and ligation of the companion vein is then unnecessary.

7. It should not be forgotten that *suture-ligatures* are invaluable in certain tissues for the control of hemorrhage.

8. *The immediate temporary control of excessive bleeding can be accomplished by firm pressure* with gauze pads. *Avoid repetitions and blind groping with a hemostat in a puddle of blood;* there is no surer way of producing irreparable damage to vital structures.

Firm pressure with gauze pads and ten minutes of patience will permanently control much troublesome bleeding. The same procedure will make the control of even the most serious hemorrhage an easier, deliberate, and planned maneuver. Watson-Jones tells the story of a surgeon who purposely cut the vessels in the renal pedicle, without applying clamps or ligatures, in order to demonstrate the ease of controlling hemorrhage.

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The surgeon calmly packed the wound tightly with large gauze packs, and left the operating room for a cup of tea. On gently removing the packs five minutes later, the field remained dry long enough for him to apply hemostats with great deliberation to both the artery and the vein.

9. Remember that successful *end-to-end anastomosis* of even relatively small arteries can be accomplished with the use of heparin to prevent thrombosis. If disastrous ischemia may result from arterial ligation, anastomosis should be done, if possible.

10. Avail yourself of equipment that will make hemostasis during surgery easier: a good suction, with a fine tip, such as the neurosurgeons use routinely; silver clips; an electrocoagulation unit, and oxidized gauze of various sizes. All of these are useful at times.

Shock

Shock, like hemorrhage, is a common emergency during operations. Fortunately, the modern surgeon does not have to operate in constant fear of surgical shock as the relative ease of volume-for-volume replacement of blood loss alleviates such fear. The problem does arise, however, and occasionally constitutes an extreme emergency.

The first consideration in the management of shock during operations is the proper evaluation of the patient preoperatively. Volume-for-volume replacement of blood loss must be planned when extensive elective operations are contemplated. Existing shock must be controlled *before the operation* in the case of seriously injured patients or in the presence of acute massive hemorrhage. It may not be possible to restore the severely shocked or exsanguinated patient to an ideal circulatory state, nor is it wise to delay unduly in the attempt, but shock should be controlled preoperatively to the point where tissue anoxia is relieved. This means a systolic blood pressure of 80 mm. of mercury or above. In addition, plans must be made for the continued vigorous treatment of the patient during the operation. A minimal systolic blood pressure of 100 mm. of mercury is sought. When there has been blood loss, whole blood is used to replace the estimated loss, whether it be 500 or 3500 cc. When there is continued shock without exceptional blood loss, serum albumin infusion is an excellent supplement, and is preferred to the excessive use of whole blood.

Intra-arterial transfusion is occasionally indicated as a resuscitative measure in profound shock. Every operating team should be familiar with its use and the necessary components of a simple pressure system for arterial transfusion should be available in every hospital. Caution must be exercised to avoid the introduction of air into the patient, as this constitutes one of the great hazards of the procedure. Care must also be taken to prevent ischemic necrosis due to arterial spasm. This complication may be avoided by the local infiltration of procaine and by the application of a pressure cuff distal to the site of arterial puncture.

Cardiac Arrest

One of the most awe-inspiring emergencies which arise during surgical operations is cardiac arrest. Fortunately, it is not a common complication. When it does occur it requires prompt decisions and immediate radical treatment: Three and one-half minutes is the limit of time available to restore heart action if irreparable brain damage is to be avoided.

The anesthetist and the surgical team must be alert to the possibility of this emergency, which may occur with any operation or at any time during the induction and maintenance of anesthesia. The team must be organized to institute restorative measures promptly, without the confusion and hesitancy which ordinarily accompanies such a catastrophe.

It is the anesthetist's duty to inform the surgeon of the need for immediate action when cardiac arrest is detected or suspected, and to start artificial respiration with 100 per cent oxygen, preferably through an endotracheal tube. It is the surgeon's duty to start cardiac massage at once. This may be done through an opening in the diaphragm, if an abdominal operation is in progress, or, better still, through an incision in the fourth interspace on the left. We keep a few sterile instruments readily available in the operating room and specifically designated for use in making an intercostal approach to the heart should cardiac arrest occur when the necessary instruments are not otherwise available. Simultaneously with the instigation of artificial respiration and cardiac massage, 0.5 cc. of 1-1000 adrenalin is given intravenously. This may be combined with 9.5 cc. of 1 per cent procaine and kept ready and mixed for immediate use, as Lahey recommends.

Laryngeal Obstruction

Laryngeal obstruction due to laryngospasm and inspiration of foreign material is a frequent anesthetic complication that may require the cooperation of the entire surgical team. Complete laryngeal obstruction due to laryngeal edema or trauma is less common. When it does occur it is a potentially serious complication, but it can be handled easily if the operating team is properly prepared. Endotracheal intubation or the introduction of a bronchoscope will afford an immediate airway and temporary control of the situation. Tracheotomy can then be done in an orderly fashion. The necessary equipment for these procedures should be readily available in every operating room. A surgeon who does not have an anesthetist capable of doing endotracheal intubations should master the technic himself—it is not difficult.

Air Embolism

Air embolism is an emergency of surgery of the neck, axilla and mediastinum. It occurs when air is sucked into the collapsed veins as they are cut or torn. The introduction of a fatal amount of air into the circulation may occur quickly in this manner. Non-fatal air embolism may cause convulsions, shock, and cardio-respiratory difficulties.

The surgeon usually becomes conscious of air embolism by hearing the noise produced by suction of air into the veins. Compression of the operative area with moist sponges immediately controls the situation. Flooding of the field with normal saline solution is also recommended as a means of control. If the torn vessel cannot be easily located, and ligated or sutured, the wound should be lightly packed.

Injury to Vital Structures

Accidental operative injury to vital or important structures is not an uncommon emergency during surgery. These injuries occur and are to be occasionally expected in spite of the fact that operative techniques are deliberately planned in order to avoid them.

Adequate anatomical exposure is the best guarantee against damage to vital structures. If one wishes to avoid injury to the common bile duct, for example, the duct must be clearly exposed, together with the adjacent right hepatic and cystic arteries. The anesthetic must be good and the incision adequate. The surgeon must know the anatomy of the region, and *know that he knows it.* The surgeon who plans an operation that he does not do too often must be humble enough to refresh his knowledge of the regional anatomy and the potential hazards prior to the operation. His home library should include good reference books for this purpose.

When operative injury of vital structures does occur the emergency must be recognized and treated. The immediate repair of a severed common bile duct, together with the insertion of a T-tube through a separate opening in the duct, will be followed by few, if any, ill-effects. Other operative injuries may likewise be repaired at the time of the injury without undue difficulty. When such injuries are overlooked, however, the late repair may be extremely difficult and hazardous, if indeed the patient survives until an attempt can be made to correct the damage. It cannot be too strongly emphasized that injuries of vital structures must be recognized *when they* occur, and repaired *where they occur.*

CHEST X-RAYS

Ten years ago, a chest x-ray for the apparently well person was relatively uncommon. In 1950, however, some 15 million people in the United States had small-film radiographic examinations of their chests in tuberculosis screening programs. Since the development of the photofluorograph in the late 1930's, and its refinements in the 1940's, the use of miniature x-ray equipment by local official and voluntary health agencies has grown enormously, and there is scarcely a state or county of the United States where case finding by this means has not been done, either in community-wide surveys or in segmental surveys of special population groups.—Robert J. Anderson, M.D., Medical Papers of the Annual Meeting of the Canadian Tuberculosis Association, May, 1951.

IMMEDIATE POSTOPERATIVE EMERGENCIES

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IMMEDIATE postoperative emergencies are frequently of such severity as to cause grave concern for the life of the patient. Unless these complications are adequately treated, death may ensue. Surgical shock and failure of the cardiac or respiratory systems are the usual causes of the immediate postoperative emergencies.

Surgical shock, which has developed during the course of the operation, whether it be from loss of blood, undue surgical trauma or general debility of patient, must be adequately treated during the surgical period. Treatment must be continued postoperatively if the life of the patient is to be preserved.

Hypotension is perhaps the most common cardiac emergency. During the course of the anesthetic, the respiratory exchange of the patient may become depressed. This depression causes the carbon dioxide in the tissues to be inadequately eliminated, with the result that the blood pressure is elevated or maintained at what may be considered a normal level. The patient, upon emerging from the anesthetic, is permitted to breathe room air. Thus the excess carbon dioxide which has accumulated is eliminated, with the result, that the blood pressure frequently falls to a level which is at times alarming. This complication should be treated by placing the patient in a mild Trendelenburg position and by administration of vasoconstrictors and blood or other intravenous fluids. This treatment will usually return the blood pressure to a normal level. However, several hours may elapse before the pressure is fully stabilized.

Cardiac failure, with or without pulmonary edema, may be encountered. An electrocardiogram is of value in determining the type of cardiac involvement thus indicating the proper treatment. Pulmonary edema, should it develop, is treated by administering oxygen under increased pressure. Proper cardiac medication and oxygen administered with 3 to 5 mm. pressure is the treatment of choice for this emergency. It may be necessary to continue the administration of positive pressure oxygen for several hours or until the edema is adequately controlled.

Cardiac arrest, with or without ventricular fibrillation, calls for immediate and heroic treatment. The left chest should be immediately incised and cardiac massage started at once. Massage should be adequate to maintain a systolic blood pressure of at least 80 mm. of mercury. Intracardiac epinephrin, 0.5 cc. of 1/1000 solution in 10 cc. of 1 per cent procaine, will frequently establish a normal rate and rhythm. If ventricular fibrillation is present, electrical defibrillation may be necessary to establish a normal rhythm. Adequate oxygenation must be maintained during this period of cardiac arrest. The oxygenation must be maintained by artificial means through an endotracheal tube. This will insure an adequate, unobstructed airway.

Atelectasis is one of the most common postoperative complications. One or both lungs may be partially or totally involved and the amount of lung tissue involved determines the severity of this emergency. If one or more lobes are collapsed, the patient may have varying degrees of cyanosis, diminished breath sounds and dullness to percussion over the atelectatic area. These patients should be x-rayed to determine the amount of lung pathology. If the involvement is not excessive and oxygenation is adequate, vigorous pounding over the area will often loosen the obstructing "plug" and allow normal aeration of the lung to be established. The atelectatic patient should be placed in a high oxygen atmosphere to insure proper oxygenation. If cyanosis is present, after the patient has been placed in an oxygen tent, he should be bronchoscoped to remove the obstructing material and allow the lung to aerate properly.

Aspiration of vomitus or other foreign material may present a dire emergency. The offending material must be removed from the bronchotracheal tree as soon as possible. Proper positioning to promote drainage and bronchoscopy is indicated.

Tension pneumothorax and hemothorax following thoracic surgery may develop. These complications must be treated immediately by as-

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pirating the air or blood from the thoracic cavity, thereby allowing the lung to expand properly. The hemorrhage should be stopped by surgical means, if signs of excessive bleeding are present.

Immediate postoperative hemorrhages, other than thoracic hemorrhage, may occur, producing signs of surgical shock. This hemorrhage must be controlled as soon as possible. In the meantime, the patient should be supported by transfusions of whole blood. Diagnostic measures, such as hemoglobin and hematocrit determination, are of little value because at least twenty-four hours should elapse before these readings become accurate enough to indicate blood volume. In the meantime, physical signs must be relied upon in determining the amount of blood loss and the necessity of further transfusions.

Pulmonary emboli may occur in the immediate postoperative period. Usually the treatment of these emboli is of no avail. However, cervical sympathetic blocks may be of value if done immediately.

Coronary involvement may be another postoperative complication. Frequently, the coronary attack is initiated by hypotension which the patient may have developed. Adequate blood pressure must be maintained, at all times, to lessen this complication.

Laryngeal edema may develop postoperatively. This is especially true of children who have been subjected to endotracheal catheterization with too large an endotracheal tube. These patients should be placed in an oxygen tent to insure adequate oxygenation. A high, cold humidity should be maintained in the tent. If this treatment does not correct the laryngeal edema enough to allow adequate oxygenation, immediate tracheotomy should be performed to lessen the dangers of hypoxia.

The stomachs of small children may be overdistended by the anesthetic gases to such a degree that the respiratory exchange may become embarrassed. Removal of the gas, with a stomach tube, will eliminate this respiratory embarrassment.

Hemiplegia may develop during the immediate postoperative period. This complication may be due to cerebral hemorrhage, emboli or spasm in the cerebral vessels. Cervical sympathetic block will produce a dilatation of these vessels and at times relieve this complication. If actual hemorrhage is the cause of hemiplegia, cervical blocks are contraindicated.

Anoxia, of such a degree as to cause brain damage, may have developed during the operative period. Postoperatively, these patients do not recover satisfactorily because of the brain damage. Cerebral edema, with a resulting "wet brain," follows prolonged hypoxia. This edema should be treated by the administration of concentrated human serum albumin, 100 cc. intravenously, every four to six hours. Bilateral cervical sympathetic block produces dilatation of the cerebral vessels. This dilatation results in an increased blood flow through the brain and a lessening of the edema.

All immediate postoperative emergencies require adequate and skillful treatment. They are best treated in a well-equipped and well-staffed recovery room. Here the patients can be adequately observed and supervised until they have regained consciousness and the cardiac and respiratory functions have stabilized to such a degree that they may be safely returned to their rooms.

CHEMOTHERAPY IN TUBERCULOSIS

In general, patients with minimal pulmonary tuberculosis should not undergo chemotherapy, because most of them derive as much benefit from ordinary methods of treatment. In any event, the importance of correlating chemotherapy with other methods of treatment cannot be stressed too greatly. Chemotherapy is not a substitute for prolonged bed rest, and the proper timing of the addition of collapse therapy, when appropriate, should be planned in each case on an individual basis, at the outset. —William S. Schwartz, M.D., The J.A.M.A., February 23, 1952.

THE EVALUATION OF COMPENSABLE DISABILITY

CARL O. RICE, M.D.
Minneapolis, Minnesota

THE evaluation of industrial disability has seemed always to create a great deal of controversy between doctors. Those men who have learned how to evaluate disabilities usually arrive at the same conclusion, though their method of doing so may vary.

In this locality certain men, such as Harvey Nelson, Ed Evans, M. O. Henry and the late George Dunn, have learned infallibly to make accurate evaluations of disability.

It will often be heard said by the inexperienced that a piano player should receive greater disability for the loss of a finger than a laboring man, or that the loss of a foot is worth more to a dancer than it is to an office worker. These opinions, no doubt, may be correct, but it is not the responsibility of a doctor to determine the monetary value of an extremity. The doctor should decide only the extent of the anatomical and functional loss of the extremity. He is a specialist in this field, but he is not a specialist in monetary values.

The patient, no doubt, will desire to consider the partial loss of a finger or two equivalent to 100 per cent of as much as he can get.

Terminology.—The industrial laws in each state indicate specific indemnity values for "the loss of, or the loss of use of, an indusrial member." For less than complete loss of an industrial member, the law specified "that the partial loss of a member shall be paid for as a percentage of the whole member."

Within these legal stipulations the doctor is expected to determine the percentage loss of the industrial member.

The "industrial member" may be defined as one of the anatomical parts for which a specific indemnity is awarded by the industrial law. These have been specified in the upper extremity as a "thumb," an "index, middle, ring, and little finger," a "hand," a "hand and wrist," and the entire "arm."

In the lower extremity the industrial members are defined as the "great toe," the "other toes," "the foot," the "foot and ankle," the "leg below hip," and the "entire leg."

These industrial members are, on the whole, uniformly designated in all states. Any disability evaluation must be made on the basis of one of these. It must be made on the basis of the smallest industrial member within which all of the disability factors can be included.

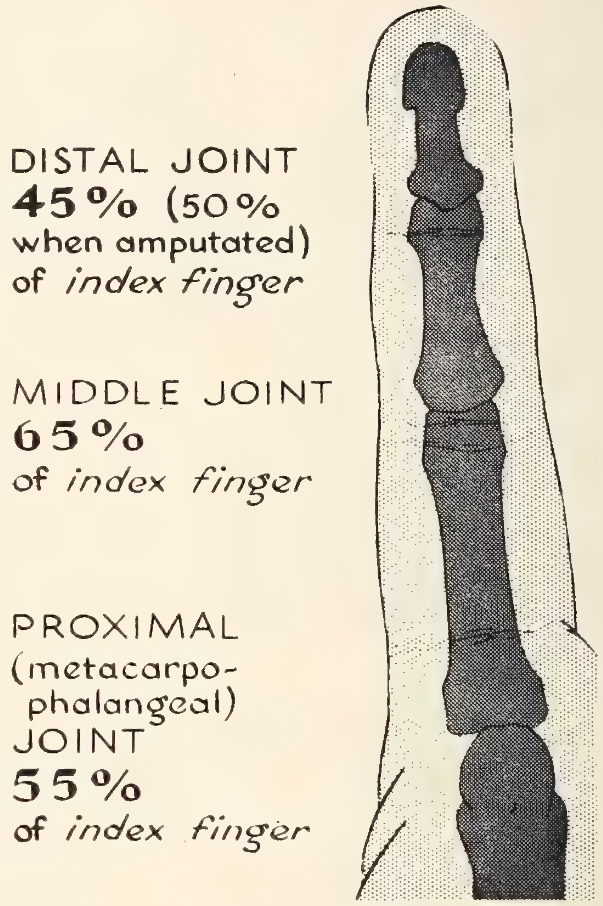

DISTAL JOINT
45% (50% when amputated) of *index finger*
MIDDLE JOINT
65% of *index finger*
PROXIMAL (metacarpo-phalangeal) JOINT
55% of *index finger*

Fig. 1. The relative value of the units of the finger. From Rice, Carl O.: The Calculation of Disability of the Extremities. Springfield, Ill.: Charles C Thomas, Publishers, 1952.

If, for example, a disability has been incurred in a hand and also in the elbow of the same arm, the sum of these disabilities must be established as representing a percentage of the entire arm. It would not be correct to give a disability to a hand separately and to the elbow in the same arm separately. The two must be combined to represent the disability to the entire arm, this being the smallest member within which both of these units can be placed.

Presented at round-table discussion at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

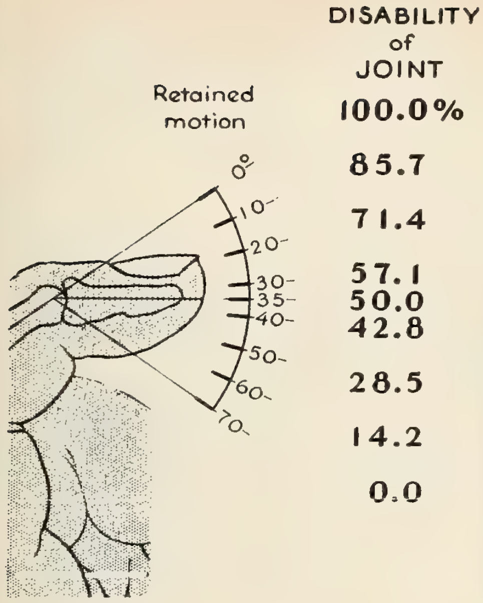


Fig. 2. The percentage of disability of the distal joint of the finger calculated for each 10° of retained motion.

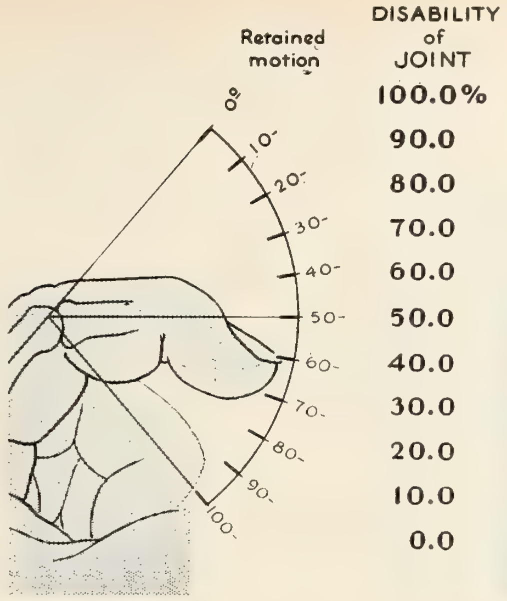


Fig. 3. The percentage of disability of the middle joint for each 10° of retained motion.

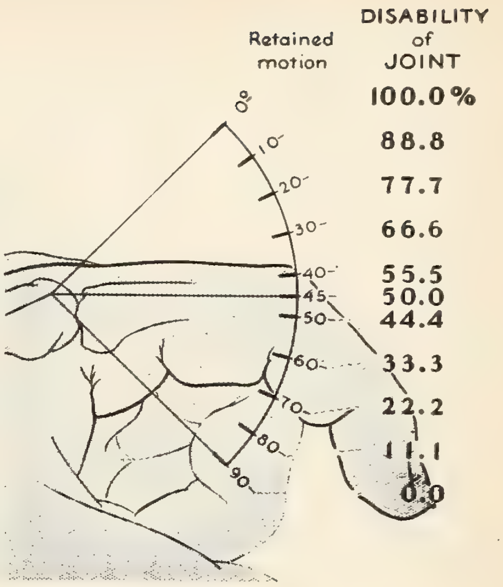


Fig. 4. The percentage of disability of the proximal joint of the finger for each 10° of retained motion.

Relative Values.—Disability calculations must be made so that they are compatible with the industrial law. In that the industrial law specifies certain indemnities for certain industrial members, or portions of an industrial member, it then becomes possible to establish values for portions, or units, of the industrial member in relation to the whole industrial member.

For example, the industrial law of the State of Minnesota has specified 150 weeks of indemnity for the loss of a hand, and 200 weeks of indemnity for the loss of an arm. This, then, gives the hand a value of 75 per cent of an arm.

$$\frac{150 \text{ (indemnity value — of the hand)}}{200 \text{ (indemnity value of the arm)}} = 75\% \text{ (value of hand in relation to the arm)}$$

In a similar manner it has been possible to establish relative values for each joint of the finger in relation to the whole finger, each finger in relation to the hand, and the hand in relation to the entire arm.

In this manner the distal joint has obtained a value of 45 per cent, the middle joint a value of 65 per cent, and the proximal joint a value of 55 per cent of the finger (Fig. 1). These values have been established partly on the basis of industrial law stipulation and partly on the basis of functional usefulness.

Disability of the Joint.—The ability to impart motion to an extremity is a criterion of its usefulness. To that extent, the useful range of motion in a joint can be used to calculate the percentage of useful motion. Conversely, the lost motion in a joint as compared to that in a normal joint determines its disability. In that it is easier to measure the degrees of retained motion, Figures 2, 3 and 4, showing the percentage of disability with each 10°, have been calculated from the degrees of retained motion in relation to the average normal range of motion.

It can be noted that 20° of retained motion in each of these joints would represent 71.4 per cent disability to the distal joint, 80 per cent disability to the middle joint, and 77.7 per cent disability to the proximal joint. The different disabilities in each joint is due to the fact that the normal range of motion is different in each of these joints.

The above disabilities represent the disability of the joint in each instance. The calculation for the disability of the finger has not yet been completed in that the value of the joint in relation to the entire finger has not been given consideration.

The Disability of the Finger.—In order to obtain the disability of the finger, the disability of the joint is multiplied by the value of the joint in each instance. When the disability of each of these joints is multiplied, each by its respective value,

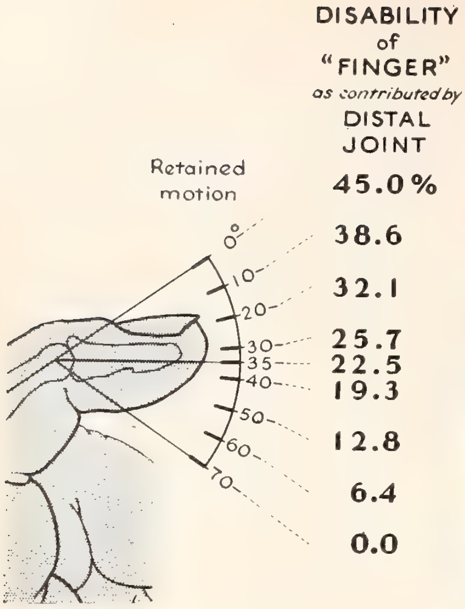

DISABILITY of "FINGER" as contributed by DISTAL JOINT
Retained motion
0°
10
20
30
35
40
50
60
70
45.0%
38.6
32.1
25.7
22.5
19.3
12.8
6.4
0.0

Fig. 5. The calculated disability of the finger as contributed by the distal joint of the finger for each 10° of retained motion.

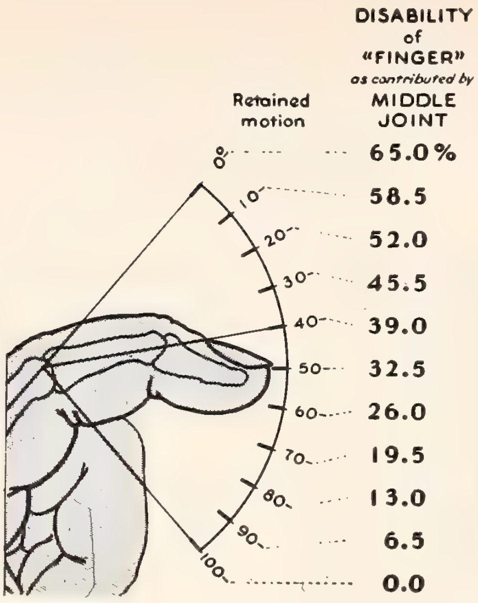

DISABILITY of "FINGER" as contributed by MIDDLE JOINT
Retained motion
0°
10
20
30
40
50
60
70
80
90
100
65.0%
58.5
52.0
45.5
39.0
32.5
26.0
19.5
13.0
6.5
0.0

Fig. 6. The calculated disability of the finger as contributed by the middle joint of the finger for each 10° of retained motion.

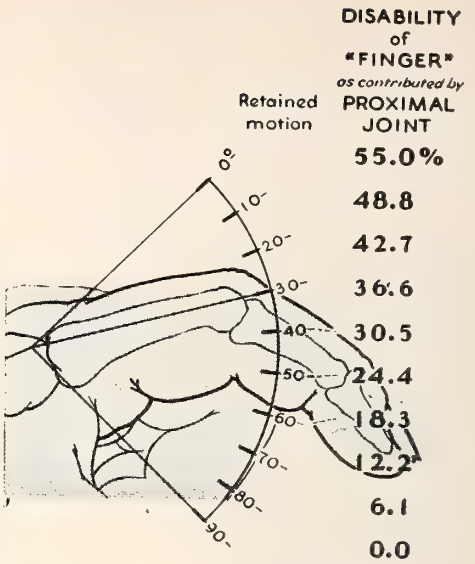

DISABILITY of "FINGER" as contributed by PROXIMAL JOINT
Retained motion
0°
10
20
30
40
50
60
70
80
90
55.0%
48.8
42.7
36.6
30.5
24.4
18.3
12.2
6.1
0.0

Fig. 7 The calculated disability of the finger as contributed by the proximal joint for each 10° of retained motion.

then we obtain the disability of the entire finger as contributed by the joint.

If the same examples were used as suggested above, namely, 20° of retained motion, it would be found that the 71.4 per cent disability of the distal joint would constitute 32.1 per cent disability of the finger.

71.4 per cent (disability of the distal joint) × 45 per cent (value of the distal joint) = 32.1 per cent (disability of the finger as contributed by the distal joint).

In a similar manner 80 per cent disability of the middle joint constitutes 52 per cent disability of the finger: 80 per cent × 65 per cent = 52 per cent, and

77.7 per cent disability of the proximal joint constitutes 42.7 per cent disability of the finger: 77.7 per cent × 55 per cent = 42.7 per cent.

If only one joint is disabled, these calculated values, as shown in Figures 5, 6 and 7, represent the final disability of the entire finger.

If, however, multiple units are involved with disability, it will be noted that the sum of these units may exceed 100 per cent of the finger far in advance of 100 per cent disability.

Therefore, when multiple units of an industrial member are involved with disability, the disability of each unit, other than the distal unit, must be reduced by an equation lest the sum of the units exceeds 100 per cent far in advance of 100 per cent industrial disability. This equation may be expressed in the following manner:

$$\frac{\text{Disability of distal joint} \times \text{value of distal joint}}{1} + \frac{\text{disability of middle joint} \times \text{the value of middle joint}}{2} + \frac{\text{disability of proximal joint} \times \text{value of proximal joint}}{3} = \text{Disability of the entire finger.}$$

For the finger 100 per cent disability would result when each of its units is 100 per cent disabled.

$$\overset{\text{Distal}}{\frac{100\% \times 50}{1}} + \overset{\text{Middle}}{\frac{100\% \times 65}{2}} + \overset{\text{Proximal}}{\frac{100\% \times 55}{3}} = 100.8\%$$

The distal phalanx would receive a value of 45 per cent instead of 50 per cent if there were no amputation or damage in its tactile tip. In that instance the maximum disability of a rigid finger would be 95.8 per cent.

$$\frac{45}{1} + \frac{65}{2} + \frac{55}{3} = 95.8\%$$

If the same disability calculation is now carried into all of the joints of the finger wherein each of its joints retains only 20° of its motion, then it can be seen that the finger with this amount of motion will be 72.37 per cent disabled (Fig. 8).

The Disability of a Hand.—If these figures are then carried over into a disability of a hand, assuming that each finger and the thumb retains only 20° of motion in each of its joints, the calculations would reveal that each finger would be 72.37 per cent disabled, and the thumb and its metacarpal would be 67.12 per cent disabled.

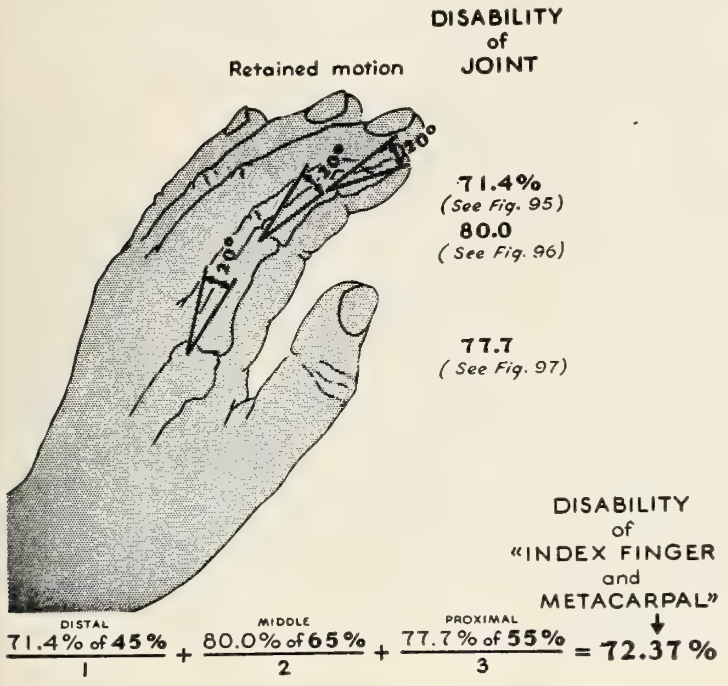
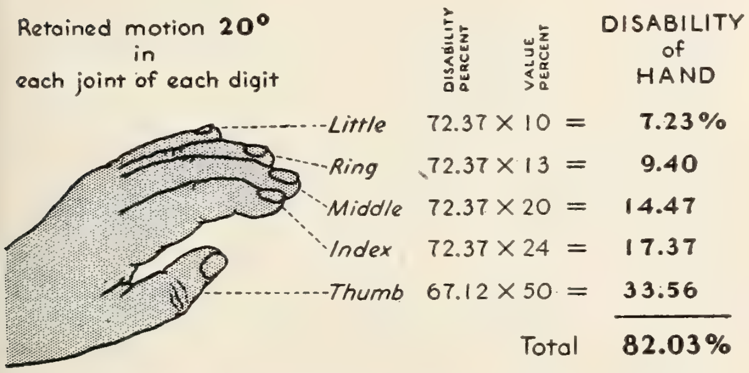

Retained motion
DISABILITY of JOINT
20°
20°
20°
71.4%
(See Fig. 95)
80.0
(See Fig. 96)
77.7
(See Fig. 97)
DISABILITY of "INDEX FINGER and METACARPAL"
DISTAL
MIDDLE
PROXIMAL
71.4% of 45% / 1 + 80.0% of 65% / 2 + 77.7% of 55% / 3 = 72.37%

Fig. 8. The calculation of multiple disabilities of the finger.


Retained motion 20° in each joint of each digit

	DISABILITY PERCENT	VALUE PERCENT	DISABILITY of HAND
Little	72.37 × 10	=	7.23%
Ring	72.37 × 13	=	9.40
Middle	72.37 × 20	=	14.47
Index	72.37 × 24	=	17.37
Thumb	67.12 × 50	=	33.56
		Total	82.03%

Fig. 9. The sum of the disabilities of the fingers constitutes the disability of the hand.

The fingers and the thumb constitute the industrial hand. They represent the units of the hand.

My multiplying the disability of each of these units of the hand by their respective values in relation to the hand and obtaining the sum of these, it is then determined that the hand is 82.03 per cent disabled when each joint retains only 20° of motion. This is illustrated in Figure 9.

Disability of the Arm.—If the wrist, elbow and shoulder are also disabled, each retaining only 20° of their normal arc of motion, the wrist would be 85.2 per cent disabled, the elbow would be 86.6 per cent disabled, and the shoulder would be 90 per cent disabled.*

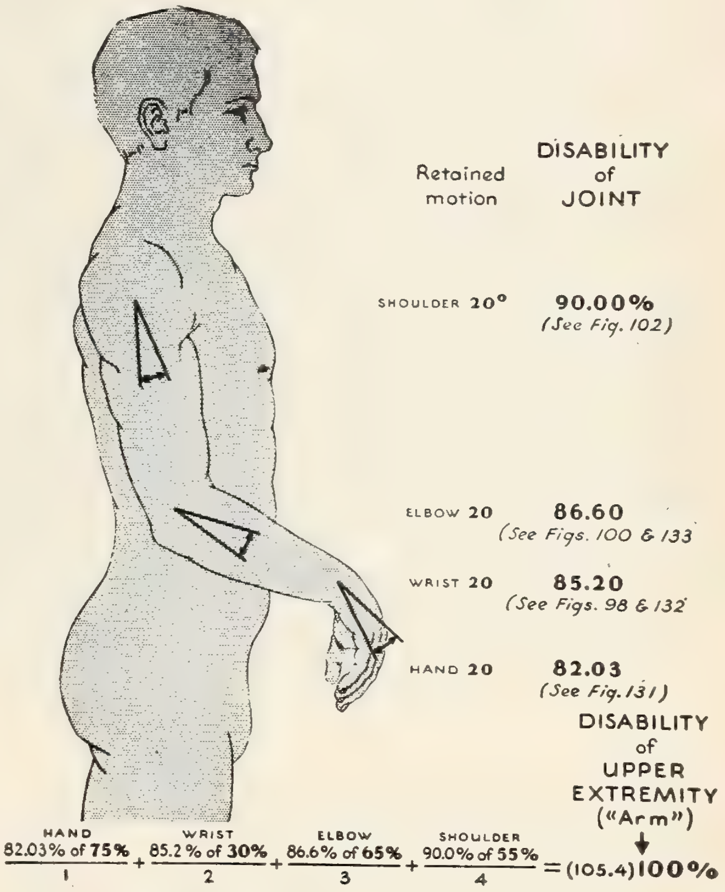

Retained motion
DISABILITY of JOINT
SHOULDER 20°
90.00%
(See Fig. 102)
ELBOW 20
86.60
(See Figs. 100 & 133
WRIST 20
85.20
(See Figs. 98 & 132
HAND 20
82.03
(See Fig. 131)
DISABILITY of UPPER EXTREMITY ("Arm")
HAND
WRIST
ELBOW
SHOULDER
82.03% of 75% / 1 + 85.2% of 30% / 2 + 86.6% of 65% / 3 + 90.0% of 55% / 4 = (105.4) 100%

Fig. 10. The disabilities in each unit of the arm and the equation for calculating the disability of the entire arm.

The sum of the disabilities of each of these units of the entire arm exceeds 100 per cent by a very large margin, and it, therefore, again becomes necessary to substitute these disability values into the equation as previously described.

The final calculation (Fig. 10) illustrates that the arm would be 100 per cent industrially disabled, though it still retains 20° of motion in each of its joints. This small amount of motion would possess no industrial value.

Comments and Conclusions

These illustrations demonstrate how a disability can be calculated. It is not possible to explain, in the time allotted here, how all of these values and how this method of calculating a dis-

(Continued on Page 784)

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*These figures have been read off from Figures 98, 100 and 102 in Rice, Carl O.: The Calculation of Disabilities of the Extremity. Springfield, Ill.: Charles C Thomas, 1952.

FRACTURES OF THE DISTAL PART OF THE FOREARM IN CHILDREN

Correction of Deformity by Growth

RAYMOND G. GIBERSON, M.D., AND JOHN C. IVINS, M.D.
Rochester, Minnesota

THE treatment of fractures in children should be guided by the same general principles that are used in treating fractures in adults. The bones of a child, however, respond differently because they are capable of growth as well as repair. Their capacity for growth may be an aid to the surgeon in the correction of deformities resulting from imperfect reduction, or may, on the other hand, be the cause of later deformity due to epiphyseal damage at the time of fracture or manipulation.

Fracture of the shaft of the bones of the forearm is a common injury in childhood. It occurs usually in the distal third, 1 to 2 inches (2.5 to 5 cm.) above the wrist, and often involves both bones. The majority of these fractures are seen in children less than ten years of age. It may be comforting at times to know that growth will correct a surprising amount of deformity. We propose to present evidence of this correction in the cases described in this paper. It is our purpose, furthermore, to emphasize certain practical points in the management of such fractures in children.

Incidence

The lower third of the forearm probably is the most frequent site of fracture in children. Beekman and Sullivan reported on 2,094 fractures of the long bones in children less than thirteen years of age seen at Bellevue Hospital. The radius was the bone most frequently fractured, being injured in 933 cases (45 per cent). Eighty-two per cent of these fractures of the forearm were in the distal third. Bagley, in a study of 200 consecutive fractures of the forearm involving both bones, found that 110 occurred in children less than ten years of age and that 101 occurred in the distal third. Thorndike and Dimmler reported on 364 fractures of the forearm and elbow in children and stated that 200 of these were in the distal third of the forearm.

Anatomic Factors

The majority of these fractures are caused by a fall on the outstretched hand and a smaller number are produced by direct violence. In the latter instance, the fractures in the bones of the forearm tend to be at the same level, while in those fractures caused by indirect violence the ulna is likely to be fractured at a lower level than the radius.[11] In a fall on the outstretched hand the force is transmitted to the humerus chiefly by the radius.[3] The fibers of the interosseous membrane are directed downward and mesially and only a small part of the force is transmitted to the ulna.

The lines of fracture usually are transverse but they may have varying degrees of obliquity. The types of fracture may be greenstick, complete, incomplete or multiple. Impaction is rare and the interosseous membrane usually is intact.

A similar force in the adult causes the fracture described by Colles. In this type, the fracture is located ½ to 1 inch (1.3 to 2.5 cm.) above the wrist and impaction and dorsal displacement of the distal radial fragment occur, together with avulsion of the styloid process of the ulna.

Correction by Growth

Longitudinal growth of bone is dependent entirely on multiplication of the cartilaginous cells in the cartilaginous plate of the epiphysis.[10] However, stimulation of growth in the length of the bone commonly takes place in fractures of the shaft. The hyperemia resulting from the callus causes hyperemia of the periosteum, and since the epiphysis receives its blood supply through the periosteum, growth is more rapid in the adjacent cartilaginous plate. When malposition and excess callus occur, the stimulation to growth will be greater than when a fracture is reduced anatomically. This overgrowth is not compensatory, however, and also occurs in shafts with perfectly reduced fractures. The average overgrowth is about 1 cm.[5] In general, the amount of overgrowth increases directly with the amount of callus present and the length of time that it persists.

It has been observed by Bagley that, when

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

Dr. Giberson is a Fellow in Surgery, Mayo Foundation, and Dr. Ivins is with the Section of Orthopedic Surgery, Mayo Clinic, Rochester, Minnesota.

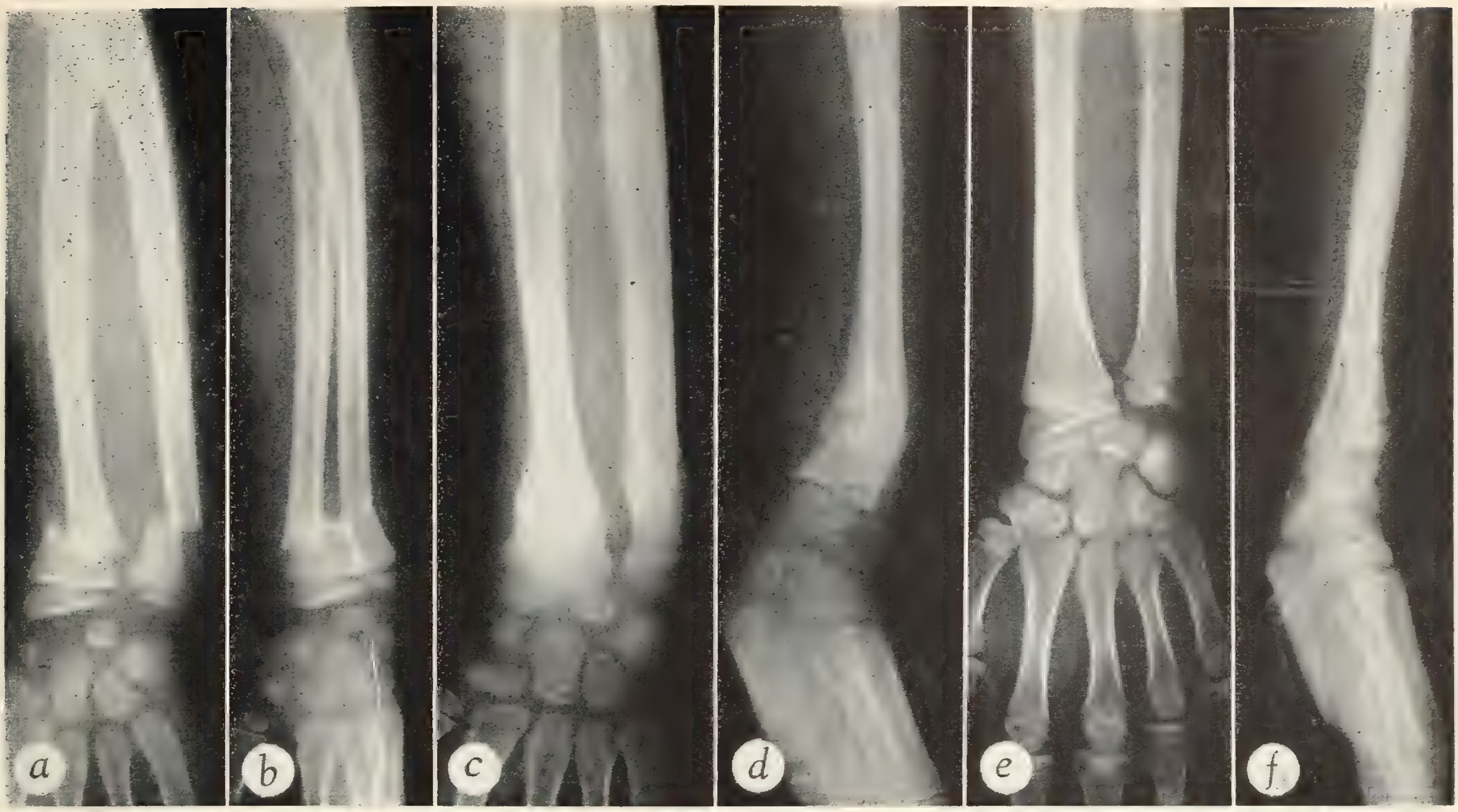

Fig. 1. Case 1. (a and b) Fracture sustained April 20, 1946. (c and d) June 3, 1946, six weeks after closed reduction. (e and f) Final result, March 29, 1952.

bowing occurs, the callus is laid down on the concave side of the deformity. Little or no callus is laid down on the convex side except when the periosteum is raised from the bone by displacement of the bony fragments. Bagley was of the opinion that this is due to the relaxation of the periosteum and soft tissues on the concave side with resulting hemorrhage, formation of clot, calcification and, later, bony formation. This deposition of new bone takes place early, while the arm is still in a cast, and apparently does not occur in accordance with demands made on the bone as to function.

Later, the deformity is corrected in accordance with Wolff's law, with laying down of bone in one place and resorption from another. Mainland has stated Wolff's law as follows: "After its formation, bone is built and unbuilt largely in response to the demands made on it. Its finer details and later modifications are due largely to external forces."

Blount[6] stated that the younger the child and the nearer the fracture is to the end of the bone, the greater will be the power of correction. He also pointed out that, in fractures of the middle third, accurate alignment is imperative at all ages since growth does not so greatly influence angulation at this level.

Aitken[1,2] has shown that growth will correct a surprising amount of deformity due to epiphyseal separation, even though the injury occurs near the time of epiphyseal fusion. He has noted correction of displacement by growth and ossification that was complete nine months after the injury. It probably is true that correction by growth when the fracture is located away from the epiphysis is not so rapid and thus, after the age of twelve years in the female and the age of thirteen years in the male, the physician should be more particular regarding reduction. The distal radial epiphysis fuses at about the age of fifteen years in the female and at the age of seventeen years in the male.[1,2]

Epiphyseal Injuries

The lower radial epiphysis is separated more frequently than any other and this separation makes up about 2 per cent of the injuries to the radius.[5] Damage to the cartilaginous plate is rare, and reduction usually is accomplished easily. If it is not reduced easily, however, conservative treatment is indicated since normal alignment almost always is re-established. The end result is not dependent wholly on the reduction accomplished but is determined in part by the amount of injury to the epiphyseal cartilaginous plate at the time of injury or reduction.

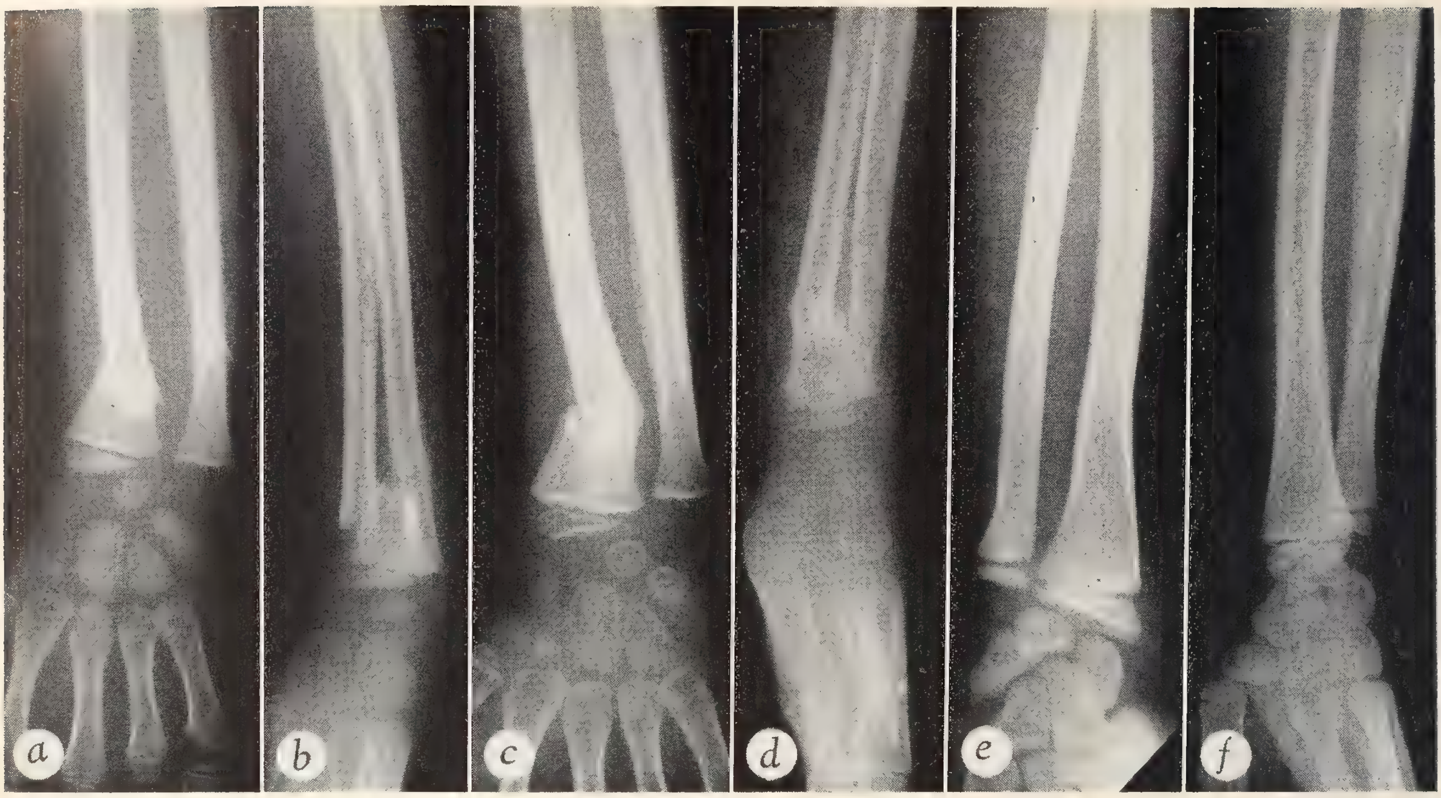

Fig. 2. Case 2. (a and b) Fracture sustained October 24, 1946. (c and d) December 10, 1946, six weeks after closed reduction. (e and f) Final result, March 11, 1952.

Method of Study

We have reviewed the roentgenograms of fractures in the distal third of the forearm in children twelve years of age or less who were treated at the Mayo Clinic since 1945. We found fifteen cases worthy of study in which there was residual deformity at the time when the patient was dismissed (about eight weeks after the injury in most cases). For purposes of comparison with these fifteen cases in which there was residual deformity after primary healing, we studied ten cases in which there was anatomic reduction of the fractures. Recent roentgenograms were made of these forearms and were compared with those made previously. The records of the cases were reviewed.

Report of Representative Cases

Case 1.—A seven-year-old boy fell a distance of 7 feet out of a haymow on April 20, 1946, sustaining the fractures shown in Figure 1, a and b. Closed reduction under general anesthesia was accomplished shortly afterward in the hospital. A circular plaster cast was applied from the metacarpophalangeal joints to the axilla, with the forearm in midposition and the elbow flexed to an angle of 90 degrees. Fixation was maintained for six weeks. Considerable deformity was present on June 3, 1946, after primary healing had occurred (Fig. 1, c and d). No further treatment was carried out. Roentgenograms made March 29, 1952, show the final result (Fig. 1, e and f). Clinically, the forearm is normal.

Case 2.—A six-year-old boy fell a distance of 10 feet out of a haymow on October 24, 1946. The fracture that he sustained (Fig. 2, a and b) was reduced by closed manipulation the same day and a circular cast was applied to the forearm and allowed to remain in place for six weeks. Roentgenograms made at the time of dismissal on December 10, 1946, showed the deformity illustrated in Figure 2, c and d. No residual deformity can be seen in the roentgenogram taken on March 11, 1952 (Fig. 2, e and f).

Case 3.—An eight-year-old girl sustained fractures of both bones of the left forearm in a fall from a swing on July 31, 1949 (Fig. 3, a and b). Closed reduction under general anesthesia was carried out after admission to the hospital. A circular plaster cast was applied from the distal palmar crease to the axilla, with the forearm in midposition and the elbow flexed to an angle of 90 degrees. Fixation was maintained for seven weeks. The deformity shown in Figure 3, c and d, was present on September 19, 1949. The latest roentgenograms, made on March 6, 1952, show little deformity and clinically the forearm is normal (Fig. 3, e and f).

Case 4.—A six-year-old boy fell on his outstretched arm on June 6, 1951. This resulted in the fracture illustrated in Figure 4, a and b. The fracture was reduced by closed manipulation and a cast applied as was done in Case 3. Considerable deformity was present on July 3, 1951 (Fig. 4, c and d). Extensive correction of the deformity has taken place in nine months, as shown by the roentgenogram made on March 27, 1952 (Fig. 4, e and f).

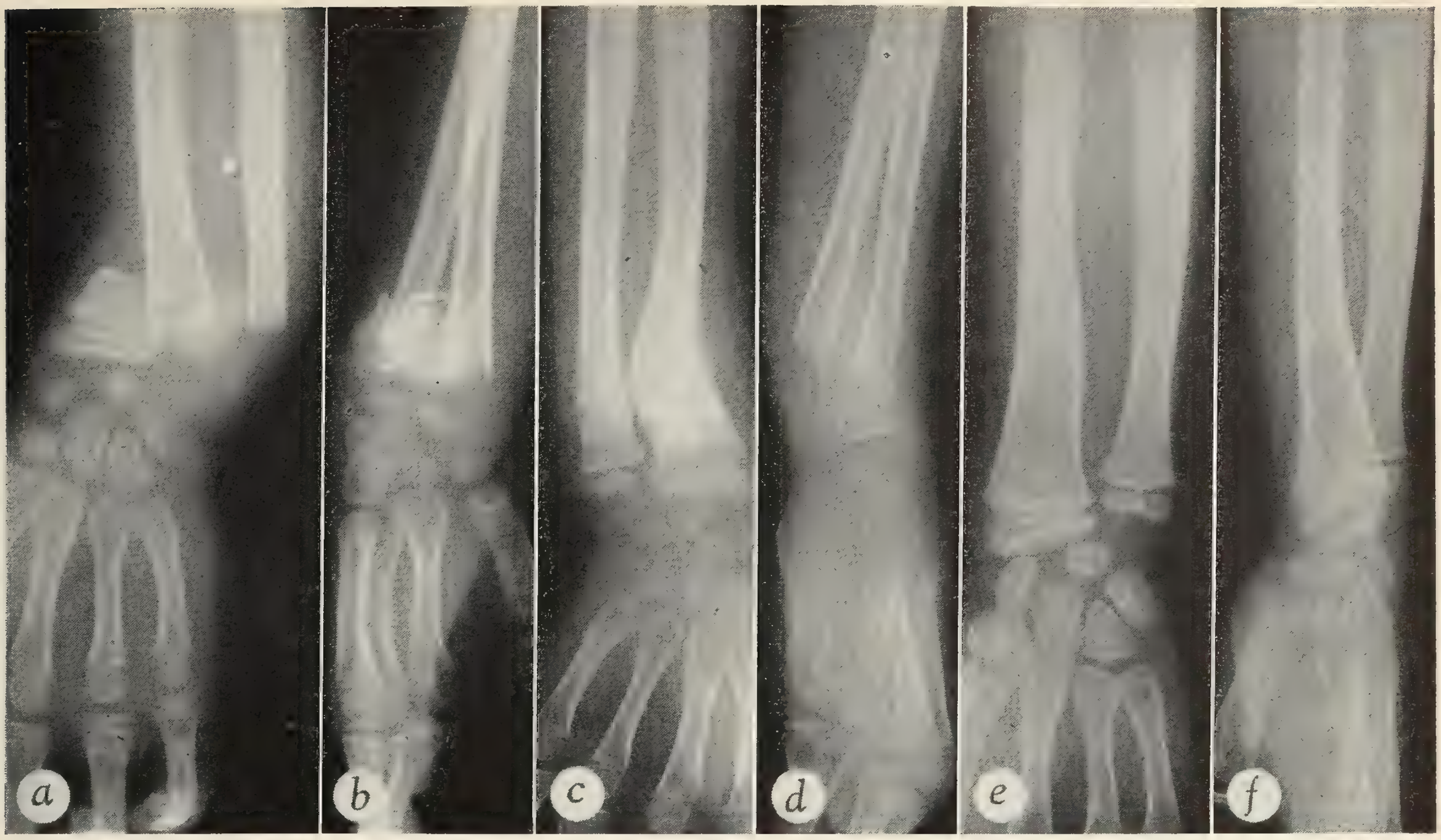

Fig. 3. Case 3. (a and b) Fracture sustained July 31, 1949. (c and d) September 19, 1949, seven weeks after closed reduction. (e and f) Final result, March 6, 1952.

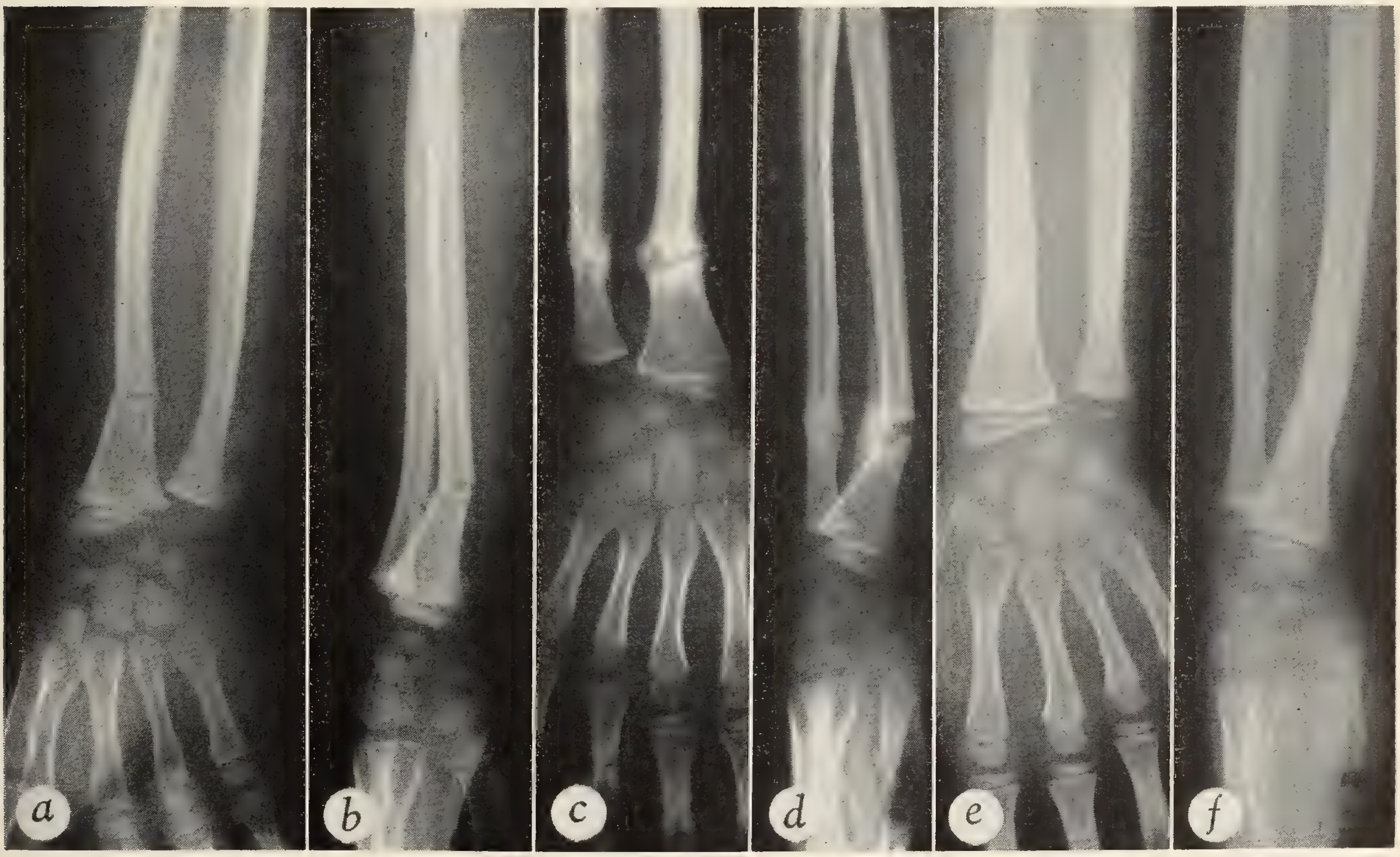

Fig. 4. Case 4. (a and b) Fracture sustained June 6, 1951. (c and d) July 3, 1951, four weeks after closed reduction. (e and f) Final result, March 27, 1952.

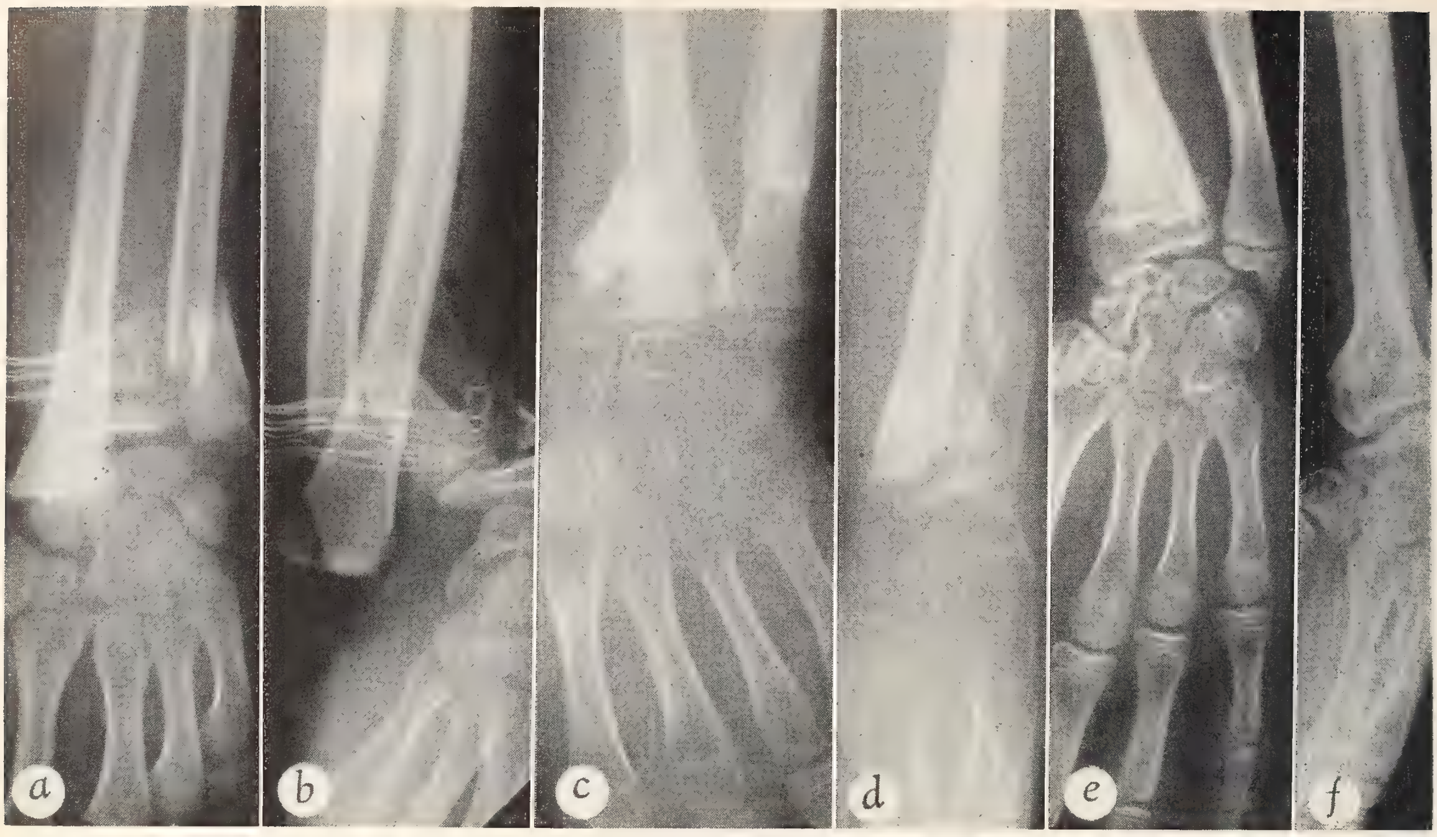

Fig. 5. Case 5. (a and b) Fracture sustained August 24, 1950. (c and d) November 1, 1950, nine weeks after closed reduction. (e and f) Extent of correction on January 17, 1952.

Case 5.—A twelve-year-old boy fell from a tree on August 24, 1950, and sustained a compound fracture of the left wrist with displacement of the distal radial epiphysis, in addition to fractures of the shafts (Fig. 5, a and b). The fractures and epiphyseal separation were reduced by closed manipulation and fixation maintained for four months. Roentgenograms made on November 1, 1950, illustrate the state of repair (Fig. 5, c and d). The latest roentgenograms, made on January 17, 1952, show remarkable correction of the deformity of the shaft but there is relative overgrowth of the ulna with radial deviation of the hand (Fig. 5, e and f). Growth in the radial epiphysis has been retarded as a result of injury and segmental resection of the ulna has been advised.

Comment

It is evident from study of these cases that growth is able to correct a remarkable amount of deformity resulting from a fracture in the distal third of the forearm in children. Accurate reduction is desirable and every effort should be made to restore anatomic relations at the first attempt by closed reduction. In the event that accurate reduction is not obtained or should angulation recur after the cast has been applied, it is better to accept something less than perfect reduction than to perform repeated manipulations or open reduction.[8,14] Practically no fracture occurs in the distal third of the forearm in children that cannot be treated better by closed than by open methods.

Blount[7] has noted that a perfect functional result and, after a year, a perfect anatomic result will ensue in a young child without the ends of the bone being in apposition if alignment is reasonably good. The younger the child and the nearer the fracture is to the end of the bone, the less particular the physician needs to be.

In this study, the end results were the same for patients in whom the deformity after reduction occurred as for those in whom fractures were anatomically reduced. In no patient in whom the shaft alone had been injured was there any impairment of function or any evidence of the previous deformity one year after injury.

These fractures should be treated as emergencies and reduction should be obtained early. However, if the fracture occurs just after the child has eaten, as so often obtains, it is wise to splint the arm and defer manipulation until the stomach is empty, which requires twelve to twenty-four hours. Adequate premedication should be given. A mixture of nitrous oxide, oxygen and ether is the anesthetic agent of choice in most cases.

When the fracture is of the greenstick variety and if angulation of less than 30 degrees is present, reduction is not necessary. If more angulation than this is present, it should be corrected by manual compression under anesthesia. It is not necessary to complete fracture of the cortex in this instance.

When one bone remains intact, which usually is the ulna, it can be used as a lever to reduce the fracture in the other. With complete fracture of both bones, reduction may be difficult and once obtained it may be difficult to maintain. A satisfactory method of reduction has been described by Key and Conwell.

We apply a long circular plaster cast to the arm from the metacarpophalangeal joints to the axilla, with the forearm in midposition and the elbow flexed to an angle of 90 degrees. When a greenstick fracture exists with little deformity, and in the event that no reduction is attemped, application of a cast to the forearm is sufficient. In those fractures in which it is difficult to maintain position it may be necessary occasionally to apply simple traction by means of a banjo splint incorporated in the cast.

Minor displacements of the radial epiphysis may be left unreduced.[12] Complete separation usually is reduced easily when it is treated soon after its occurrence. Repeated manipulation and open reduction are not indicated, since normal restoration of alignment will take place in the presence of displacement if the epiphyseal cartilage has not been damaged.

Summary

A study has been made of the end results of fractures of the distal third of the forearm in fifteen children who were twelve years of age or less and in whom there was residual deformity of the forearm on completion of treatment. These forearms eventually became practically normal in all respects, and the results in no way differed from those obtained after anatomic reduction of similar fractures in ten patients. Every attempt should be made, of course, to restore anatomic relations in the reduction of these fractures, but repeated manipulation is seldom necessary and open reduction rarely required because growth will correct a surprising amount of deformity that may be present as a result of these fractures.

References

1. Aitken, A. P.: The end results of the fractured distal radial epiphysis. J. Bone & Joint Surg., 17:302-308 (Apr.) 1935.
2. Aitken, A. P.: Further observations on the fractured distal radial epiphysis. J. Bone & Joint Surg., 17:922-927 (Oct.) 1935.
3. Anson, B. J., and Maddock, W. G.: Callander's Surgical Anatomy. Ed. 3, p. 801. Philadelphia: W. B. Saunders Company, 1952.
4. Bagley, C. H.: Fracture of both bones of the forearm: study of two hundred cases. Surg., Gynec. & Obst., 42:95-102 (Jan.) 1926.
5. Beekman, Fenwick, and Sullivan, J. E.: Some observations on fractures of long bones in children. Am. J. Surg., 51:722-738 (Mar.) 1941.
6. Blount, W. P.; Schaefer, A. A., and Johnson, J. H.: Fractures of the forearm in children. J.A.M.A., 120:111-116 (Sept. 12) 1942.
7. Blount, W. P.: Fractures in children. In: Pease, C. N.: The American Academy of Orthopedic Surgeons Instructional Course Lectures. Vol. 7, pp. 194-202. Ann Arbor, Michigan: J. W. Edwards, 1950.
8. Bosworth, B. M.: Fractures of both bones of the forearm in children. Surg., Gynec. & Obst., 72:667-669 (Mar.) 1941.
9. Colles, A.: On the fracture of the carpal extremity of the radius. Edinburgh M. & S. J., 10:182-186, 1814.
10. Haas, S. L.: Interstitial growth in growing long bones. Arch. Surg., 12:887-900 (Apr.) 1926.
11. Key, J. A., and Conwell, H. E.: The Management of Fractures, Dislocations, and Sprains. Ed. 5, pp. 671-675. St. Louis: C. V. Mosby Company, 1951.
12. Mainland, Donald: Anatomy as a Basis for Medical and Dental Practice. P. 83. New York: Paul B. Hoeber, Inc., 1945.
13. Thorndike, Augustus, Jr., and Dimmler, C. L.: Fractures of the forearm and elbow in children: an analysis of three hundred and sixty-four consecutive cases. New England J. Med., 225:475-480 (Sept. 25), 1941.
14. Whipple, A. O., and St. John, F. B.: A study of one hundred consecutive fractures of the shafts of both bones of the forearm with the end-results in ninety-five. Surg., Gynec. & Obst., 25:77-91 (July) 1917.

FACTS TO REMEMBER

In the last national election, 44,870,320 Americans didn't bother to vote, although 93,704,000 were eligible to cast a ballot. Only 52 per cent went to the polls. In Minnesota, only 63.6 per cent of the voting population exercised their privilege of voting. In 1948, a total of 1,906,000 Minnesotans were eligible to vote; yet 693,777 remained at home, according to a tabulation by Minnesota Taxpayers Association.

RESUSCITATION OF THE NEWBORN

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STATISTICS published in a recent editorial in *The Journal of the American Medical Association*[5] estimate that infant mortality in the first few days of life exceeds 120,000 per year. A 14-year study of needless neonatal deaths conducted by the Chicago Health Department from 1935-1949 brings us a breakdown of these imposing figures.[2] Most significantly, the largest percentage of neonatal deaths (51.9 per cent) occurs during the first 24 hours of life. The authors list the cause of death percentage-wise as follows:

	Per Cent
Abnormal pulmonary ventilation	54.3
Injuries at birth	18.2
Malformations	12.0
Infections	6.2
Anoxia	4.7
Miscellaneous	4.6

We thus see that the pathological factors involving respiration are by far the most important to be considered. Unfortunately, the correction of the majority of these factors still does not lie within our present grasp of knowledge. Nevertheless, prompt and adequate treatment will offer much, both in the actual saving of life, and perhaps even more important in the reduction of irreversible cerebral damage attendant to inadequate oxygenation.

A brief review of the physiological changes that must occur in the fetus before respiration in the outside world can begin, serves to give us a clearer understanding of these dramatic changes and at the same time points up our woefully inadequate information on these very same facts.

Many studies[1,13] indicate that initiation of respiration is not delayed to the moment of birth, but actually begins much earlier in the gestation period. Most of these studies involve the injection of some particulate matter into the amniotic sac before delivery and then studying its distribution in the lungs of experimental animals sacrificed upon delivery. Whether this is effective constant respiration, and what initiates and stops it, are questions that yet remain to be answered.

The initiation of extra-uterine respiration has puzzled physiologists for many years. Basically, the stimuli carbon dioxide, hydrogen ion concentration, and oxygen lack that control respiration in later life, are probably the same ones that initiate it prenatally or at birth itself, the fundamental difference, of course, being the threshold level of response in the newborn and in the adult.

There are, to be sure, many other ways of stimulating respiration besides hydrogen ion concentration, carbon dioxide, and oxygen want. Pain, cold, cutaneous stimuli, do produce reflex respiratory gasps. However, one may speculate that these stimuli are inadequate if the physiological stimulus itself is ineffective, and that when respiration does follow a simple cutaneous stimulus like spanking, the infant's respiration would probably have begun in a moment anyway without the spank.[12]

Specifically, however, in the light of present knowledge what measures can be adopted to initiate and maintain adequate respiration in the infant suffering from asphyxia? Ross and Strong[11] a number of years ago made an exhaustive study of techniques available for resuscitation of the asphyxiated infant. These varied from outmoded methods such as alternate immersions in hot and cold water, to the use of complicated mechanical apparatus. In a study of fifteen methods, these authors comment that "practically any child can be revived by the use of intratracheal catheter and alternate inspiration and expiration through the catheter." Although this statement may be overly opimistic it emphasizes a further statement by these authors that this, "one procedure, easily learned after two or three demonstrations, should save most of the babies that would otherwise die from asphyxia."

Flagg,[6] founder of the Society for the Prevention of Asphyxial Death, presents a comprehensive review of the value of the intratracheal catheter technique. He outlines three basic principles in infant resuscitation:

1. Exposure of the field
   (laryngoscopy under direct vision)
2. Removal of foreign material
   (suction of fluid and the relief of the obstruction).

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

3. Application of treatment, directly to the damaged area with the greatest possible precision, dispatch, and absence of trauma.
   (intubation by direct vision and insufflation of oxygen, carbon dioxide under controlled pressure).

These basic principles elaborated fourteen years ago still stand as fundamental concepts in infant resuscitation. The only point that might be questioned is the suggested use of carbon dioxide. Experimental work done by different observers, including Kane and associates[7] showed "that the carbon dioxide content of the blood in the newborn (taken from the umbilical cord) is consistently high; that the proportion of carbon dioxide increases with the degree of asphyxia, and therefore, that the addition of carbon dioxide to oxygen as a resuscitating agent is contraindicated."

For the purpose of our discussion one might divide those infants requiring resuscitative efforts into two groups: the first efforts to be used in the mildly depressed infant, and the second efforts to be undertaken unhesitatingly if our first simpler technique fails, and to be used directly in all cases of the severely asphyxiated infant.

Although the obstetrician assumes the first responsibility for the infant's airway by customarily aspirating the infant's pharynx with a rubber bulb syringe or else inverting the infant and stripping mucus from his throat by a massaging sweep of his gloved finger from the lower jaw towards the mouth, frequently this simple effort is not an adequate one. Immediately at this point the assistant obstetrician, the pediatrician, or the anesthesiologist must begin the first series of additional resuscitative efforts. These consist of further freeing of the infant's airway through introduction of a soft tipped rubber catheter into the mouth and posterior pharynx and aspirating directly. A carefully controlled suction will withdraw any mucus or blood present and not obtained with the bulb syringe. At the same time, one offers to the infant a high concentration of oxygen given with a closely fitting mask by positive manual pressure through a breathing bag. Redundant as it may sound, it is essential to actually observe motion of the thorax and the diaphragm with each manual compression of the breathing bag. Merely applying 100 per cent oxygen to the infant's face and not providing for its actual entrance into the lower respiratory tract by inflating the lungs, allows the majority of the oxygen to dissipate to the atmosphere and only a relatively small amount reaches the blood stream through the mechanical action of the heart, the so-called "hemoglobin oxygen pump."[3] Frequently, this suctioning of the pharynx plus manual inflation of the lungs with the oxygen are sufficient to initiate adequate spontaneous respiratory movements.

If, within a matter of a moment or two, these simple measures do not produce voluntary respiratory exchange with a marked improvement of cyanosis, one should not hesitate to begin the second group of resuscitative efforts. This consists in the implementation of the principles set forth by Flagg: namely, exposing the larynx under direct vision, the removal of any foreign material present deep in the pharynx, or in the tracheobronchial tree itself by suctioning with a catheter, and finally the insertion of a small No. 00 portex or soft rubber endotracheal tube. With the latter providing an assured airway, one can most effectively supply oxygen to the infant through a positive pressure technique. In addition, the endotracheal tube futher provides a good channel through which one may aspirate the tracheal bronchial tube. By carefully manipulating the infant's head one may frequently direct the soft suction tip into the right or left main stem bronchus as desired. Although this technique may seem complicated or even slightly formidable to the unpracticed, skill can readily be required through experience until intubation can be performed completely atraumatically. One of the oft-neglected teaching opportunities for the intern and resident is the use of the non-viable fetus on which to practice. Here one may practice exposure of the larynx and intubation without any fear of trauma and away from the urgency of providing oxygen to a precarious infant.

Even in our present inflated times, all the equipment necessary for these procedures may be purchased for less than $100.00. A simple positive pressure apparatus with breathing bag,* a Miller infant laryngoscope,† a soft No. 00 endotracheal tube, connectors, and a No. 8 French soft suction catheter comprise all the mechanical equipment required.

Special anatomic considerations of the infant's larynx have been well brought out in an article by Eckenhoff.[4] He points out the cephalad position of the infant's larynx as compared with the adult and the characteristic short stiff U-shaped epiglottis. Exposure of the larynx is best accomplished by passing the blade of the laryngoscope beneath the epiglottis into the post-cricoidal space, then slowly withdrawing it until the arytenoid cartilages appear in view. Elevation of the tip of the blade and slight forward movement will usually result in good exposure of the vocal cords.

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*Ohio Chemical Co., Madison, Wisc., Postoperative treatment outfit for small cylinders.

†The Foregger Co., New York City.

In selecting the length of the endotracheal tube to be inserted, one bears in mind that the average distance from the gums to the glottis in the newborn is about 3 inches and about the same distance from the glottis to the tracheal bifurcation. The tip of the endotracheal tube must, of course, be somewhere in the last measured space.

When oxygen is supplied to the infant by manual alternate compression and release of the breathing bag, one must bear in mind the danger of too great pressure being applied to the lung alveoli. According to Flagg,[6] a pressure of 25 mm. Hg may be safely sustained for five seconds without danger of rupture of alveoli. In practice, one rarely exceeds 10 mm. Hg pressure and through experience accomplishes a sense of feel that prevents too great pressures being exerted on the breathing bag. A refinement of technique consists of a water manometer which automatically releases pressure in the system at a predesignated level.

Many mechanical devices have been suggested and utilized in resuscitation efforts. Most of these offer poor substitution for patiently and carefully performed manual techniques. One recent article pointing out hazards of intubation and manual technique offers as a substitute an expensive piece of apparatus which simulates pressure changes *in utero* and theoretically at least forces excess fluids and secretions from the upper respiratory tract. The effectiveness of such equipment in actually initiating respiration still remains to be proven. The use of incubators with close regulation of temperature, humidity, oxygen, etc., offer an ideal atmosphere to the infant once it has been resuscitated, but only after the latter has been accomplished.

The misuse of analeptics in stimulating respiration in infants as well as adults is well brought out in a recent article by Leffingwell[8] in which the author states, "delaying the start of pulmonary ventilation while drugs are prepared and injected may cost the patient his life. There is no known drug that will initiate respiratory activity that has ceased." Earlier experimental work by others, including Mousel and Essex,[10] support this contention. The action of most analeptic drugs is to further increase the baby's demand for oxygen in a patient already suffering from an inadequate supply of oxygen.

From a prophylactic point of view aspiration of gastric contents in the newborn infant may be a worthwhile effort. Little[9] shows a reduction of 50 per cent in the fetal mortality of infants delivered by cesarean section when prophylactic aspiration of the stomach was carried out immediately after birth. Since it has long been recognized that respiratory difficulties are highest in the cesarean section babies (probably due to a lack of the compression action of the uterus on the flexed chest in clearing the tracheobronchial tree) adequate suctioning of these infants and intubation may be especially important.

In closing, may we comment on the time at which one should begin resuscitation technique. Although it has been suggested that the newborn infant is probably better able to withstand oxygen want than his adult counterpart, it would seem logical that moments lost in beginning adequate respiration and oxygenation are lost never to be regained, and that the temporizing of several minutes waiting for the infant to begin breathing spontaneously through "natural phenomenon," may be the difference between superior or average intellect in the formative years to come. Surely, until good evidence to the contrary is available, immediate effective resuscitation is the least hazardous course to pursue.

Summary

1. The principles of adequate resuscitation in the severely asphyxiated newborn infant include direct exposure of the larynx, thorough suctioning of both the pharynx and tracheobronchial tree, insertion of an endotracheal tube, and manual control of respiration with 100 per cent oxygen supplied by positive pressure apparatus.

2. The use of complicated mechanical devices and analeptic drugs is questionable.

3. Time lost in beginning effective infant resuscitation may never be regained.

Bibliography

1. Barcroft, J., and Baron, D. H.: The genesis of respiratory movements in the fetus of the sheep. J. Physiology, 88:56, 1936.
2. Bundeson, H.; Potter, E. L.; Fishbein, W. I.; Bauer, F. C., and Plotzke, G. V.: Progress in reduction of needless neonatal deaths. J.A.M.A., 148:907-917 (March) 1952.

(Continued on Page 808)

Clinical-Pathological Conference

Case Report

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History.—A sixty-nine-year-old white man, married, was first admitted about a month before his death to another hospital because of "progressive deterioration of his general physical condition." For several weeks he had had progressive loss of appetite and weight, a slight cough, questionable expectoration, and had been feverish. An x-ray film of the chest will be described later. Further study was advised, but the patient refused and left the hospital. Three weeks later and four days before his death he became confused, disoriented and restless and he coughed up, or vomited about a pint of bright red blood, and was readmitted to the same hospital.

Past History.—He had been a diabetic for at least ten years. His diabetes apparently had not been well controlled, for it is known that on several occasions he had had marked glycosuria with and without acetone, and yet had refused to follow medical advice. Seven years before he had required 50 units of protamine zinc insulin daily. More recent requirements are not known. There was no history of diabetic coma or insulin reactions.

Seven years and again three years before his final hospital admission he had midepigastric pain and tenderness, not otherwise described, which subsided in several days, undiagnosed and without treatment. An electrocardiogram, taken at the time of the first episode of pain, is said to have shown T waves that were "diphasic in I and II, low isoelectric in III, low and diphasic in IV." At the time of the second episode of pain enlargement of the liver was noted. The hepatomegaly persisted during the intervening three years. There was no known exposure to tuberculosis. His wife and children were living and well.

Physical Examination.—He was fairly well nourished, acutely ill, disoriented, irrational and restless. The mucous membranes of the lips were pale. On the skin of the abdomen on the left side there was a series of very small brownish discolorations arranged in linear distribution along the lateral border of the left rectus muscle. There was no other discoloration of the skin or mucous membranes. The pupils were small, irregular, reacted sluggishly to light but did not accommodate. Ears, nose and throat were normal. The thorax was symmetrical with normal mobility. The left hemithorax was clear to auscultation and percussion. Over the right basal area posteriorly moderately coarse rales were persistently heard but percussion sounds were normal. The blood pressure was 110 mm. of mercury systolic and 80 diastolic. The temperature was 98.8° F. and the pulse rate 78 per minute. The heart was normal except for tachycardia. The peripheral arteries were moderately sclerotic. The abdomen was markedly distended and tympanitic. The liver edge was felt 4 fingerbreadths below the costal margin in the midclavicular line, was hard, slightly tender to deep pressure and had a suggestion of nodulation. The spleen or other masses were not palpable. Genitalia were normal. There was no cyanosis, finger clubbing or edema. The deep tendon reflexes were normal but sluggish. No Babinski sign was elicited.

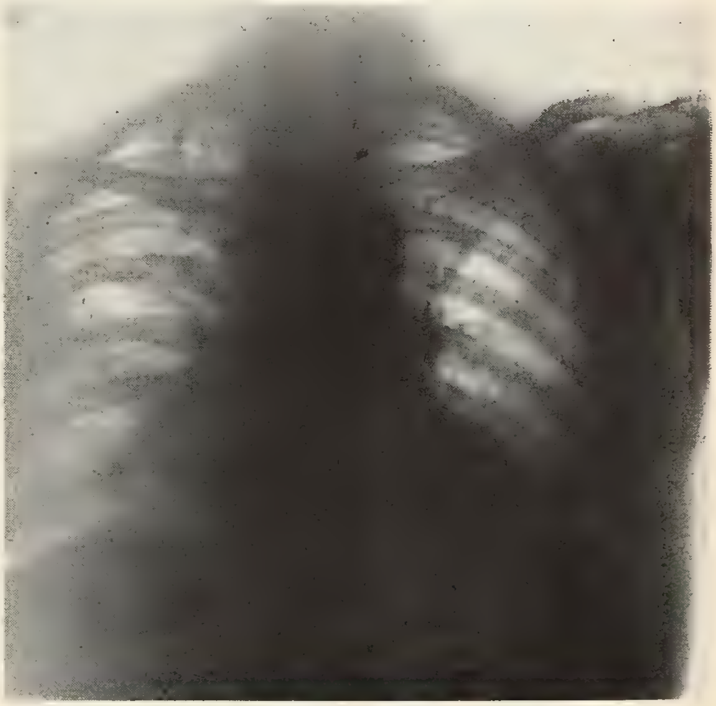

Fig. 1. Roentgenogram of chest.

Laboratory Data.—On admission the erythrocyte count was 3,620,000 per cu. mm., the leukocyte count 12,000 with 92 per cent neutrophils and 8 per cent lymphocytes, and the hemoglobin was 88 per cent. The urinalysis revealed sugar 2 plus, and microscopically 12 to 20 erythrocytes per field and numerous pus cells.

X-Ray Study.—Films of the chest (Fig. 1) taken about one month before his death revealed nodules 2 cm. in diameter in the upper and the lower lobes of the right lung; these were thought to be consistent with either pulmonary tuberculosis or malignancy.

Course.—During the terminal three days in the hospital he was irrational and semicomatose. His pulse varied from 78 to 120 per minute. No additional blood pressure readings were taken. The normal temperature which had been normal, rose to 100° F. on the last day.

Differential Diagnosis

Dr. M. E. Flipse: "Let us try to untangle the differential diagnosis, starting with the emergency entrance of this patient into the hospital with a history of having vomited, or coughed up, about a pint of bright red blood. Pulmonary bleeding in the adult is usually accompanied

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From the Department of Pathology, St. Luke's Hospital, Duluth, Minnesota.

either by coughing, or by clearing the throat, and some patients experience a vague sensation in the chest which enables them to tell the approximate site of the hemorrhage. Blood from the lungs is often bright red and frothy, less frequently mixed with sputum or mucus. Hematemesis, on the other hand, is usually preceded by nausea and accompanied by retching, but bright red unchanged blood may well up in the throat and mouth from esophageal bleeding without associated symptoms. In this case the attending physicians were unable to decide between hemoptysis and hematemesis. The x-ray film of the chest suggests either tuberculosis or pulmonary neoplasm, both important causes of gross hemoptysis. We need not consider seriously other important causes of hemoptysis, such as bronchiectasis, mitral stenosis and pulmonary infarction; or the less frequent causes, such as ruptured aneurysm, hypertension, lung abscess and blood dyscrasias.

"I believe the episode of bleeding was hematemesis from esophageal varices secondary to portal hypertension produced by cirrhosis of the liver. There is nothing to suggest the other causes of hematemesis, namely, peptic ulcer, cancer of the stomach, hiatal hernia, leiomyoma of the stomach, and blood dyscrasias. The rapidly progressive mental deterioration and death of the patient after the loss of an amount of blood insufficient to produce shock or significant anemia, are quite compatible with cirrhosis. In many patients with chronic hepatic insufficiency the gradual downhill course may be rapidly converted into a terminal central nervous system type of disease by a mild infection, trauma, sedative or relatively minor blood loss.

"Uremia secondary to the so-called necrotizing renal papillitis, a fulminating type of acute pyelonephritis,[12] is a not uncommon but frequently missed complication of diabetes that could account for the terminal picture. The leukocytosis of 12,000 with a shift to the left and the urinary findings of blood, pus and bacteria would fit with this diagnosis. However, these findings are equally compatible with genitourinary tuberculosis or a nonspecific cystitis or prostatitis.

"Considering all the possibilities and the available information, I believe the terminal events were manifestations of cirrhosis; namely, hematemesis from esophageal varices leading to acute hepatic failure, cholemia and death.

"It might be argued that the evidence for cirrhosis is scant but an enlarged nodular liver known to be present for at least three years in a native American without heart failure, is most likely cirrhosis. The absence of spider angiomata, testicular atrophy and loss of hair does not exclude cirrhosis but only signifies that one of the many functions of the liver, the detoxification of estrogens, was not seriously impaired.[8] The failure to palpate a spleen in a distended and tympanitic abdomen is not surprising. Laboratory evidence of impaired liver function, at least a retention of bromsulfalein, would give strong support to the diagnosis of cirrhosis. However, Ricketts and associates[10,11] have shown that occasionally one may have marked hepatic disease, even cirrhosis, with no abnormality in known liver function tests. The evidence of macrocytosis in the blood noted three years ago and again a few days before death is compatitble with a diagnosis of cirrhosis.

"Hepatoma or primary carcinoma of the liver should be mentioned for it is found in approximately 7 per cent of cirrhotic livers and is practically never unassociated with cirrhosis. Its presence could account for the nodular and enlarged liver, rather than a shrunken liver, most commonly seen in cirrhosis. Metastatic carcinoma to the liver from the lung or from any other site, of this duration, would be most unusual.

"A punch or needle biopsy of the liver would have been the most valuable single test in this case as it is in any diabetic with a large liver. In this case, I believe, it would have proved the presence of cirrhosis, settled the problem of a superimposed hepatoma and, if my diagnosis is correct, would have established the etiology of the cirrhosis as being hemochromatosis.

"Sheldon[14] points out that 80 per cent of the patients reviewed had an onset with one of the well-known triad, diabetes, skin pigmentation and cirrhosis, and that there was an equal chance of any one of the triad being the presenting complaint. Feder,[4] in a recent review, emphasizes that only one of the triad may be present for long periods of time and that the cirrhosis is the most constant finding.[15]

"I believe most of the picture presented by this patient's illness can be explained on the basis of hemachromatosis. He had the diabetes. I have reviewed the evidence for the cirrhosis. The series of minute brownish areas of discoloration arranged in linear fashion along the lateral border of the left rectus muscle might have been the pigment of hemochromatosis. The extent and character of pigmentation in hemochromotosis may vary from complete absence, in 20 per cent, through a few non-specific specks to diffuse pigmentation of any shade between the melanosis of Addison's disease and the slate gray of argyria. In about half the cases with skin pigmentation the pigment is melanin, owing to disturbance in liver and adrenal function; in the rest it is the pathognomonic iron pigment hemosiderin, so easily detected by skin biopsy of the pigmented area with use of appropriate iron stains. Abdominal pain, either mild or severe and shocklike, has been described.[3,9]

"Even the nonspecific T wave changes in the electrocardiogram could be caused by the deposition of iron in the heart, for this is a common occurrence, usually without clinical manifestations, although heart block, auricular fibrillation and heart failure have been reported.

"Thus we can explain the entire picture except the lung lesion on the basis of hemochromatosis. The lung is one of the few organs spared by this disease. One might postulate metastasis to the lung from a hepatoma secondary to the pigment cirrhosis, but I would prefer the added diagnosis of pulmonary tuberculosis. I make this diagnosis because of the x-ray film, which suggests multiple cavities in the right upper lung field, and because poorly controlled diabetics have a high incidence of pulmonary tuberculosis. Lipoid pneumonia, common in old persons who take mineral oil as a laxative or as nasal drops is most unlikely."

Pathologic Findings

Dr. A. H. Wells: "I am sure you will agree that Dr. Flipse's differential diagnosis is a masterpiece of reasoning and interpellation. His conclusions are correct except for minor features. The patient did have hemochromatosis (Figs. 2, 3 and 4) with some of its complications. There was a moderately severe cirrhosis of the liver with dilatation of the venous bypasses and rupture of an esophageal varix. The entire gastrointestinal tract was filled with dark reddish purple blood. The loss of blood was probably the immediate cause of death. A multicentric hepatoma had developed in the cirrhotic liver and had metastasized to the right lung causing the opacities in the roentgen film of the right lung (Fig. 1). There were no lesions of pulmonary tuberculosis. An examination of the brain was refused. The entire clinical picture of this patient is explained upon the one disease, hemochromatosis, and its complications except for a focal area of acute pyelonephritis in the right kidney. This was probably a blood-borne infection and accounts for the findings of pus and blood in the urine.

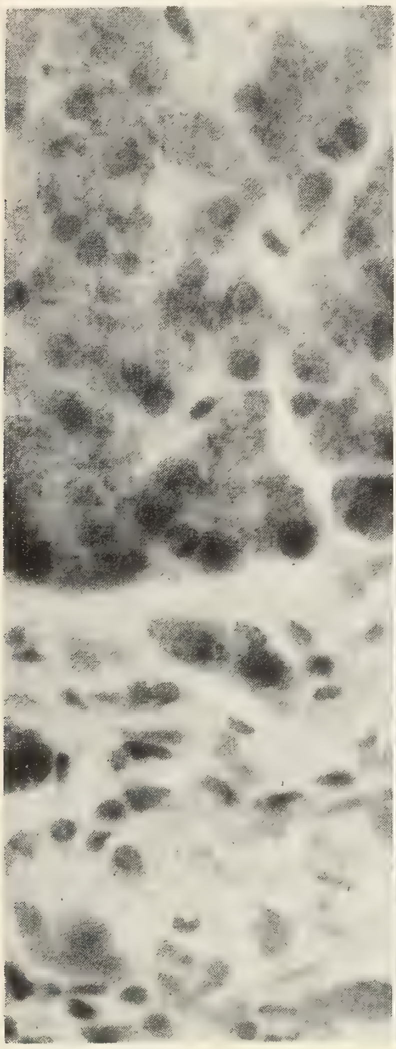

Fig. 2. (left). Degenerated liver cells in disrupted cords containing hemosiderin adjacent to scar tissue.

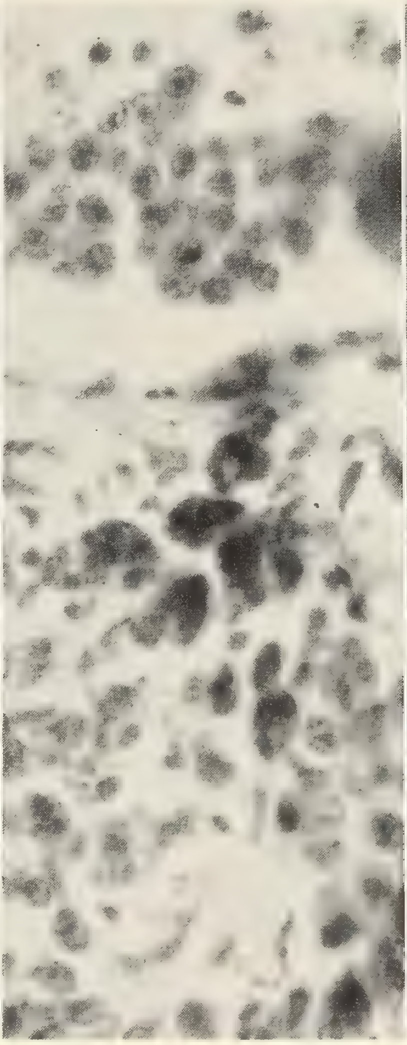

Fig. 3. (center). Hemosiderin in acinar cells, extensive destruction of acini, and relatively mild deposits of iron in the islets of Langerhans.

Fig. 4. (right). Over-developed photomicrograph of heart muscle to bring out minute hemosiderin granules in cytoplasm.

"Histologic studies were of unusual interest in the finding of multiple neoplasms among the cirrhotic nodules of the liver. These ranged from hyperplastic changes in the liver cells through adenomas with large droplets of inspissated bile, through papillary adenomas and adenocarcinomas to highly anaplastic carcinomas of histologic grade IV. This finding in cirrhotic livers is not rare. It should be considered in the same light that many regard the varying grades of neoplasia found in multiple polyps of the colon or the development of multicentric malignant neoplasms in other organs or sites on or in the body."

Discussion

Question: "What is the difference between the iron storage disease following multiple blood transfusions and hemochromatosis?"

Dr. Wells: "Extensive deposits of hemosiderin occur in the tissues of patients with a variety of diseases in which red blood cells are destroyed intravascularly. Many blood transfusions with or without the hemolytic diseases may be responsible for the same iron deposits in tissues. This has been called hemosiderosis and should be distinguished from hemochromatosis primarily because the basic abnormal physiology of the latter remains a mystery and secondarily because the iron deposits in the former are mostly in the reticuloendothelial cells of the body while in hemochromatosis the hemosiderin is predominately in the liver, pancreas, skin, adrenals, thyroid gland, intestinal tract epithelium and choroid plexus. In spite of these generalizations hemosiderosis can result in pigmentation of the skin, cirrhosis of the liver, and diabetes mellitus, all the result of excessive iron deposit.

"There seems to be a trend in the literature[5,14] to favor the theory that the basic abnormal physiology in hemochromatosis results in an excessive absorption of iron from the intestinal contents. Once absorbed the excess iron accumulates over many years eventually causing serious injury to the liver and pancreas.

"The rigid conservation of iron in the body after it is absorbed, so fundamental in normal iron metabolism may well become the 'accessory to the fact' in both hemochromatosis and hemosiderosis. This conclusion is accentuated by the fact that hemochromatosis is twenty times more frequent in men than in women and that when it does occur in women the average age is twenty years more than in men."

Question: "Is the cirrhosis the cause of the carcinoma of the liver?"

Dr. Wells: "Since the cirrhosis of hemochromatosis is associated with hepatoma in approximately 18.9 per cent of the cases,[7] there is a remarkably close relationship between the two conditions. The clinician should expect and look for evidences of hepatoma in any case of hemochromotosis. Incidentally, in a series of 1989 cases of portal cirrhosis reported by Berk and Liever,[1] hepatomata were present in 4.5 per cent. The more than four-fold greater frequency of carcinoma of the liver associated with portal cirrhosis over that occurring with hemochromatosis cirrhosis[7] is undoubtedly due to the greater incidence of portal cirrhosis."

Question: "What is the treatment of hemochromatosis?"

Dr. Flipse: "In closing, I would like to emphasize that the diagnosis of hemochromatosis is no longer only of academic interest inasmuch as rather specific therapy is suggested by the studies of Davis and Arrowsmith.[2] They believe that the gradual accumulation of iron in the body is caused by inability of the intestinal mucosa to reject ingested iron. Since the human has little or no capacity to excrete iron, it accumulates in the tissues, causes death of parenchymal cells and fibrous replacement. By the repeated removal of 500 ml. of blood by phlebotomy at a rate of 4 to 7 pints a month, separation and discarding of the red blood cells, and readministering the plasma, they were able to remove 15 to 20 gm. of iron per year from the human body. Such therapy in three patients resulted in symptomatic improvement, improvement in the diabetes and presence of less iron and less cirrhosis on biopsy in the post-treatment specimens than in tissue removed before the treatment."

References

1. Berk, J. E., and Lieber, M. M.: Primary carcinoma of the liver in hemochromatosis. Am. J. M. Sc., 202: 708-714, 1941.
2. Davis, W. D., Jr., and Arrowsmith, W. R.: The effect of repeated bleeding in hemochromatosis. J. Lab. & Clin. Med., 36:814-815, 1950.
3. Desforges, G.: Abdominal pain in hemochromatosis. New England J. Med., 241:485-487, 1949.
4. Feder, I. A.; Gitman, L., and Hoffman, J. B.: Hemochromatosis. Rev. Gastroenterol., 17:1048-1057, 1950.
5. Finch, C. A.; Gibson, J. B., II; Peacock, W. C., and Fluharty, R. G.: Iron metabolism. Utilization of intravenous radioactive iron. Blood, 4:905-927, 1949.
6. Joslin, E. P.; Root, H. P.; White, Priscilla; Marble, Alexander, and Bailey, C. C.: The Treatment of Diabetes Mellitus. Ed. 8, pp. 228-235. Philadelphia: Lea and Febiger, 1946.
7. Joslin et al.: Citation in reference 6, pp. 544-547.
8. Krainin, Philip, and Kahn, B. S.: Hemochromatosis: report of a case in a Negro; discussion of iron metabolism. Ann. Int. Med., 33:453-462, 1950.
9. McClatchie, S.; Taylor, H. E., and Henry, A. T.: Acute abdominal pain and shock associated with hemochromatosis. Canad. M. A. J., 63:485-488, 1950.
10. Rickets, W. E.; Kirsner, J. B.; Palmer, W. L., and Sterling, K.: Observations on the diagnostic value of liver biopsy, tests of hepatic function and electrophoretic fractionation of serum proteins in asymptomatic portal cirrhosis. J. Lab. & Clin. Med., 35:403-407, 1950.
11. Rickets, W. E.: Pathological liver with minimal or no changes in "liver tests." Am. J. M. Sc., 221:287-292, 1951.
12. Robbins, E. D., and Angrist, Alfred: Necrosis of renal papillae. Ann. Int. Med., 31:773-793, 1949.
13. Schwartz, S. L., and Blumenthal, S. A.: Exogenous hemochromatosis resulting from blood transfusions. Blood, 3:617-640, 1948.
14. Sheldon, S. H.: Hemochromatosis. London: Oxford University Press, 1935.
15. Warren, S.: The Pathology of Diabetes Mellitus. P. 170. Philadelphia: Lea and Febiger, 1938.
16. Warren, S., and Drake, Wm. L.: Primary carcinoma of the liver in hemochromatosis. Am. J. Path., 27: 573-610, 1951.

CONTROL OF DISEASES

The control of diseases due to an insanitary environment can, obviously, often be accomplished in sudden and dramatic fashion. No such easy victories can be achieved with the contact-borne diseases, since man is much less susceptible to control than his surroundings. Such maladies as tuberculosis and syphilis have been fought almost as effectively but at a slower pace.—C. E. A. Winslow, The Cost of Sickness and the Price of Health, WHO Monograph Series, No. 7, 1951.

History of Medicine In Minnesota

NOTES ON THE HISTORY OF MEDICINE IN WASECA COUNTY PRIOR TO 1901

B. J. GALLAGHER, M.D., and J. F. LYNN, M.D.
Waseca, Minnesota

(Continued from the July issue)

L. D. McIntosh was born in Bethel, Vermont, probably about 1838. His mother was the sister of Dr. Muzzy, a noted physician and surgeon of his day in Boston. He had four brothers, one of whom died in infancy. The boys were all geniuses along some line. Ruben became a famous photographer, William propagated the well known McIntosh Red Apple, and Soloman made fine maple sugar and syrup that was known throughout the east for its quality.

Dr. McIntosh was a graduate of the Medical College of Castleton, Vermont, probably in 1860, and that year he married Miss Rebecca Preston, at Sheboygan, Wisconsin. He was Assistant Surgeon in the 47th Wisconsin Infantry for a time during the Civil War. He was very ill in Tennessee with typhoid fever. After the war, he returned to Wisconsin.

He was a dentist as well as a physician and while in Sheboygan, he practiced dentistry and carried on an office practice of medicine. In January, 1869, he moved to Waseca, Minnesota, which had been established about a year before. He was a brother-in-law of Dr. H. J. Young, the first physician in the City of Waseca, who also had come from Sheboygan in 1867. Dr. McIntosh was a born inventor and at one time, whether while still in Sheboygan or later in Waseca is not known, devised a uterine supporter for a patient. Later he sold the patent and that device is still on the market as the McIntosh Uterine Supporter. The man who bought the patent made a fortune on it.

In 1879, Dr. McIntosh and his family moved to Chicago and he went into a large firm, known as the "McIntosh Battery and Optical Company," manufacturing electrical appliances, principally projecting lanterns (stereopticon machines) and microscopes. These machines were used by many noted lecturers of that time, such as Burton Holmes and Stoddard. It is of interest to recall that in that year, 1879, Edison perfected the first incandescent light bulb.

Dr. McIntosh was not a strong man, physically, but very ambitious and a great worker. He was a very ardent temperance man and prohibitionist while in Waseca, and stood high in his profession. In Chicago, before his death he held a professorship, and was president of the Chicago Dental College, as well as a professor in electric therapeutics in the Chicago Postgraduate Clinic. He was appointed assistant superintendent of microscopy for the Chicago World Fair. In February, 1892, he went to a convention of doctors in Florida, to give a course of instruction at a Chautauqua and while there became ill and died, age 54, at De Funiah Springs, February 28, 1892.

Dr. and Mrs. McIntosh had two daughters, Lulu, now deceased, and Rebecca, now Mrs. Rebecca Thompson, living (1952) in Santa Barbara, California.

Dennis J. McMahon was born at Prior Lake, Minnesota, on March 28, 1866. He grew up there and later attended the University of Minnesota. He graduated from the College of Physicians and Surgeons at Keokuk, Iowa, in 1895. He first practiced at New Richmond, Wisconsin, from 1895 to 1897. He then moved to Waseca where he was in practice from 1897 until the fall of 1900. In 1899 he married Miss Katherine Mulcahey of the Waseca community and in 1900 he moved to Raymond, Minnesota, where he remained until 1918 when he located in Breckenridge, Minnesota. There he remained in active practice until 1937 when he retired. He died at Breckenridge on April 12, 1940.

Dr. and Mrs. McMahon had two children. A son, Leo H. McMahon, became a physician, graduated at the University of St. Louis and later practiced at Breckenridge. He died in 1944. A daughter, Mildred A. McMahon, graduated at the University of Minnesota and is now (1952) teaching social studies in the Balboa High School, Balboa, Canal Zone. Mrs. McMahon died at Breckenridge on December 18, 1945.

William Murphy was born in County Armagh, Ireland, on October 7, 1815. He came to America when he was 3 years old. His family settled in Pennsylvania and as a young man he became a homeopathic physician, graduating at the Hahnemann Medical College in Philadelphia, where he entered the practice of medicine. On September 4, 1842, he was married to Miss Sophia Fisk at Brighton, Ohio. One son was born to this marriage, John F. Murphy, in Philadelphia, on January 7, 1850. Dr. Murphy was a well known musician in Philadelphia and was pipe-organist in an Episcopal Church. His granddaughter, Miss Martha I. Murphy, still lives in Waseca and she has in her possession a little book called "Hamilton's Catechism of the Organ" which was autographed by Dr. Murphy in Philadelphia in 1850. Dr. Murphy's health began to fail a few years after that and the family moved to Minnesota in 1857, presumably because the climate was supposed to be good for "lung trouble." They arrived at the town of Wilton in December, 1857. It is not known that Dr. Murphy ever practiced there very much because he was in poor health, but it is known that at times he taught school in the Wilton Seminary, a private school that started in 1858, and closed for all time in April, 1861, the first month of the Civil War. He died at Wilton of tuberculosis on May 14, 1859. His son, John F. Murphy, who was nine years old when his father died, became a printer and later a publisher of the *Waseca Herald*. He lived to be an old man, nearly all his life in Waseca, and was always known as "Murphy the Printer."

John Nutting was born August 31, 1836, at Nuttingville, South Amherst, Massachusetts. In June, 1856, he was married to Eliza Ann White. His second marriage occurred in 1867 to Ann White. In 1882 he was married to Anabelle Beede who died in July, 1922. He had eight children, three of whom are still living (1951), Percy L. Nutting, Charles W. Nutting and Izma Da-Suess. His son, Percy L. Nutting, lives at 319 East Washington St., Mankato, Minnesota. It is not known where he graduated but he first appears in the lists of Waseca County at Alma City in 1886 and was licensed by examination. He is not listed in Waseca County in 1890 but in 1893 he was at St.Clair, Blue Earth County. By 1898, and probably for two or three years before, he was again in Waseca County, at New Richland, and is thought to have been in Alma City again from 1898 to 1901. Later he moved to Mankato where he died on October 16, 1912, and was buried at Oak Ridge Cemetery, Faribault, Minnesota.

J. J. O'Hara was born near Edinburgh, Scotland, in 1868. His father was a paper maker and moved to Ontario, Canada, when the future Dr. O'Hara was four years old. To earn money for a college course he worked in a paper mill, also studied telegraphy and later was a station agent for the Canadian Pacific Railroad in Northwestern Ontario. He graduated in medicine from Queen's University, Kingston, Ontario, Canada, in 1898 and came to Alma City, Minnesota, the same year. He heard of the need of a doctor at Alma City (five or six miles south of Janesville) through the Drs. Hector and Fred McDonald, also graduates of Queen's University. In 1904 he moved from Alma City to Janesville. At one or more times he was president of the Waseca County Medical Society and for a long time he was president of the Janesville Public Library Board. He was also active in Red Cross and other community work. He was a member of the Masonic Order, Royal Neighbors and Modern Woodmen. He was very active in the practice of medicine and extremely loyal to every cause he espoused. On September 11, 1901, he married Miss Lola Longmore of Ontaria, Canada. They had two sons. The elder, Bruce, became a druggist and died February 5, 1941, in Milwaukee, Wisconsin. The younger boy, Malcolm, became a dentist and after a few years of work for the government in CCC Camps and one or two years in private practice he joined the regular army Dental Corps. Early in World War Two he was assigned to service with Major Seagrave (Burma Surgeon) in Burma. There he did much medical and surgical work, as well as dental, and participated in the famous retreat of Major Seagrave and his outfit from Burma into India. He is now a Colonel in the regular army Dental Corps. Dr. O'Hara died of coronary thrombosis on July 6, 1931, at Janesville and is buried in the Janesville cemetery. Mrs. O'Hara is still living (1952) in Janesville.

Dr. Palmer. The *New Richland Star,* 50th Anniversary Edition in 1927, relates a story headed "Shot Down the First Doctor's Sign Here." It relates the story of four country boys who were hunting prairie chickens and came to see the first train arrive at the new Village of Richland, late in 1877. The only house in town sat on the site where the school now stands. The first physician, a Dr. Palmer, boarded there and had his sign out in the yard. The boys took turns shooting it full of holes while waiting for the train to arrive. Apparently Dr. Palmer did not stay very long as no further mention of him has been found.

Dr. R. Parkins. When Dr. Berrington left Wilton about April 1, 1874, Dr. Parkins succeeded him, but his card only appeared for two months, until June 1, 1874. It is thought that he moved to Minnesota Lake. By that time Wilton was fast becoming a "ghost" town.

F. C. Peck was the first or second doctor to come to Waseca, in the fall of 1867 when the village started. Apparently he did not stay very long and Dr. H. J. Young, who remained until 1898, is usually known as the first doctor to settle in Waseca. The first edition of a paper, the *Waseca News* (weekly) appeared on October 10, 1867. In the fourth issue, on November 1, 1867, Dr. Peck's professional card appears for the first time.

DR. F. C. PECK
Office over Smith's Store
Second Street, Waseca, Minn.

Dr. Young's card first appeared two weeks later in the November 15, 1867, issue:

H. J. YOUNG, M.D.
Physician & Surgeon
Inquire at the Drug Store or at the
Trowbridge Hotel, Waseca, Minn.

Dr. Peck's professional card appeared for the last time in the April 10, 1868, issue of the *Waseca News*. Then the May 8, 1868, issue of the same paper has the following news item:

> "Married, April 20, 1868, by Rev. W. Jones, Dr. F. C. Peck of Waseca, Minn., to Miss Belle Robinson of Mill Valley, Erie County, Penn. A friend of the Doc's wishes them 'pecks' of happiness and 'cribs' full of babies. To all of which we say 'so mote it be'."

No further mention is made of Dr. Peck. He may have returned to Pennsylvania to practice.

L. D. Pierce is known to have practiced in New Richland in the early 1880's. In 1886, 1890, and 1893 he is listed as practicing in Balaton, Lyon County. In 1896 he is not listed and nothing more has been learned about him.

Franklin T. Poehler graduated from the College of Medicine and Surgery, University of Minnesota, in 1896. He filed his certificate with the Clerk of Court in Waseca, June 17, 1896. Apparently he was in Waseca only a few months. In 1898 he is listed as practicing in Morristown, Rice County, and in 1900 he was in Minneapolis at 410 Syndicate Arcade.

William Davidson Rea is listed in old records as having graduated from the Hospital College of Medicine, Louisville, Kentucky, in 1888, and from the Minneapolis College of Physicians and Surgeons, Minneapolis, in 1898. Why the two graduations, we do not know, but in 1890 he was practicing in Indianapolis, Indiana, in 1893 in Louisville, Kentucky, in 1896 in Keokuk, Iowa, and again in 1898 in Louisville, Kentucky. His certificate to practice in Minnesota is dated June 16, 1898, and he filed it in Waseca County on July 8, 1899. We do not know in what town he practiced, if at all, and apparently not very long, because by 1900 he is known to have been practicing in Minneapolis at 329 Boston Block, at the corner of Hennepin and Third Street.

Charles I. Remington was born in Buffalo, New York, May 7, 1853, the son of C. W. and Mary Jane (Wright) Remington. After receiving a classical education in his youth, he commenced the study of medicine with Dr. E. J. Davis of Mankato in 1876. He then graduated at the Keokuk College of Physicians in 1879. In that year he started practice in Alma City. On February 14, 1882, he married Miss Lucy Clark who was born in Winona County in 1860. On December 18, 1882, a son, Everett C., was born. Dr. Remington's certificate to practice was issued January 16, 1884. In 1886, 1890 and 1893 lists he is still recorded as practicing in Alma City. Some time later he is said to have been in Marshall, Minnesota.

J. A. Reynolds graduated from the College of Physicians and Surgeons at Keokuk, Iowa, in 1884. His Minnesota license (835R) was issued March 11, 1884, and he located at Cleveland, in Le Sueur County. Later he is said to have practiced in Elysian (Le Sueur County). By the late 1890's and possibly as late as 1901, he was in New Richland, Waseca County. He is said to have been from Virginia and it is thought that he returned there after leaving New Richland.

Nathaniel Reuben Sackett, who was born on Dec. 8, 1825, in New York State and lived to be ninety-five years old, has been written up at greater length in the notes of the medical history of Olmsted County in MINNESOTA MEDICINE for June, 1951. He belonged to the regular school of medicine, receiving his education in New York State and beginning his practice in Syracuse. There he was married on August 11, 1854, to Julia A. Palmer. They came to Olmsted County, Minnesota, in May of 1855 and settled at Quincy Mills. From 1865 to 1868 he was in St. Charles, later for a shorter time in Chatfield. Then he was in Windom for some years. He came to Janesville probably about 1875 and was there until 1909 or 1910. He helped organize the Masonic Lodge in Janesville and he and his wife were members of the Methodist Church. They spent the last years of their lives at Lanesboro where Mrs. Sackett died on November 21, 1914, and Dr. Sackett on December 20, 1920.

Delos Dewitt Smith was born August 9, 1860, at Beaver Dam, Wisconsin, and came as a young boy to Minnesota. He attended Shattuck Military Academy at Faribault. He started his business career as a druggist in 1883 in Alma City. He was married to Miss Emma Shephard of that vicinity in 1885. In 1890 he graduated from the Missouri Medical College of St. Louis, and for the next ten years was a practicing physician at New Richland, Minnesota. He then attended Jefferson Medical College of Philadelphia for postgraduate work in eye, ear, nose and throat. Upon his graduation he returned to Mankato where he practiced for ten years, from 1900 to 1910. In 1910 he retired and left Mankato for San Diego, where he resided up to the time of his death on December 24, 1936.

Willis Leroy Sterns graduated from Rush Medical College, Chicago, in 1894. While he apparently did not file his certificate with the Clerk of Court, he did promptly file for the office of coroner on the Republican ticket, and was elected coroner in the fall of 1894. He is still listed as being in Waseca in 1896 but he did not again run for coroner. From 1898 to at least 1902, and probably longer, he is known to have been in practice at Mason City, Iowa.

Frederick Adelbert Swartwood was born at Cannon City, Rice County, Minnesota, December 8, 1860. He attended public schools, a four-year elective course at Carleton College and graduated in medicine at Ann Arbor in 1886. He married Ida M. Poe, November 20, 1886, and came to Waseca that fall where he practiced until his death forty-four years later. They had two children, Madeline, now Mrs. Mark Moore of Denver, and Harold, now of Chicago. He was the first president of the Waseca Savings and Loan Association, president of the Waseca Telephone Company, stockholder in the Armstrong Wholesale Company, mayor of Waseca for several terms, was a member of the Waseca School Board, president of the Waseca Commercial Club, postmaster under McKinley, Roosevelt and Taft, and surgeon for the Chicago Northwestern Railroad for many years. He was active in party politics, was temperate in his habits and capable of performing an immense amount of labor. He had a large clientele during his forty-four years of practice in Waseca. He was very instrumental in the starting of the Waseca Memorial Hospital in 1921. He died November 11, 1930, of heart trouble which had made it impossible for him to work for several months. Probably no doctor that ever practiced in Waseca had such a large and faithful following for so long a time as Doctor Swartwood.

Swartwood Family Lineage

1. Alexander Swartwood (Great Grandfather) came from Holland with two brothers. Settled in New Amsterdam, now New York. They prospered in the new Colony. When the Revolutionary War broke out the two brothers returned to Holland. Alexander elected to remain in America. He enlisted and fought in the Revolutionary War on the side of the American Colonies.
2. Henry Swartwood—son of Alexander (Grandfather) established his home in Pennsylvania, near Philadelphia. His vocation was agriculture.
3. Henry A. Swartwood—son of Henry (Father) came to Minnesota to pioneer in Territorial Days. He was born in 1836. Married Harriet Francis Shepard, born in 1837, was graduated from Mount Holyoke College, Mount Holyoke, Massachusetts. They were married in 1859 and established their home in Rice County, near Faribault, Minnesota, owning this farm during their lifetime.
4. Frederick Adelbert Swartwood—eldest son of Henry A., born December 8, 1860 on parents farm near Faribault. He attended rural school in Rice County, and Faribault high school. He graduated from Carleton College, Northfield, Minnesota, University of Michigan, Ann Arbor, School of Medicine 1886.

   Ida Mae Poe (wife), born January 12, 1861, at family home in Cherry Valley near Cannon Falls, Minnesota, was the daughter of William Estep Poe and Julia Shirpey Poe. The Poes came to Minnesota from Virginia, and Kentucky in Territorial Days. Ida Poe was educated in rural school in Goodhue County, Cannon Falls High School, Carleton College, Northfield, Minnesota, and Hamline University School of Music, Saint Paul, Minnesota. She was married to Dr. F. A. Swartwood November 20, 1886, and came directly to Waseca, where Dr. Swartwood was, for a short time, in partnership with Dr. Hunt. Establishing his own office in 1887 he practiced in Waseca until shortly before his death. He died on November 11, 1930. Mrs. Swartwood lived in the family home in Waseca until November 1943. She passed away in Saint Paul, Minnesota, on December 12, 1944.

Martin J. Taylor was born at Caledonia, Minnesota, on February 28, 1855. He graduated from the medical school at the University of Michigan in 1881. He came to Janesville, Minnesota, within a year or two and took over the practice of Dr. R. O. Craig, the pioneer physician of Janesville, who by that time had extensive business and political interests. In October, 1886, Dr. Taylor married Miss Stella I. Carpenter. They had one child, a daughter, Marvel, now Mrs. James E. Belden of Encino, California. During all the nearly thirty years of his life in Janesville he carried on a very extensive practice but always had time to give to every movement for the good of the community. At various times he served as mayor of Janesville, county coroner and president of the Waseca County Medical Society. What manner of man he was is well stated in the following tribute by a friend at the time of his death:

> "He was loved by young and old in the large territory he served. Night and day he was on call and never refused to go because of bad weather or the certainty that he would receive no pay for his services. He was very public spirited. It was he who started the library, the water system and the fire company, and who solicited the funds to paint the churches irrespective of denomination. He was a warm-hearted generous man, and no person in Janesville was more generally missed or more sincerely mourned at his passing than Dr. Martin J. Taylor."

His daughter, writing of her childhood days in Janesville, has said:

> "No matter how cold or how deep the snow or how dark the night, he would always start out with a very lively team with a bottle of home made wine and a sack of flour in the back of the cutter, for the people who needed them. No set of books was ever kept and he never dunned a man, let alone a widow. Many times he operated on a woman in childbirth on the kitchen table with husband holding the lamp only to have to lay the husband out on the floor in a complete faint, no one else to administer 'chloroform' except himself."

Dr. Taylor died in Janesville on July 3, 1910. He was buried with full Masonic honors in the Janesville Cemetery. Mrs. Taylor died in Los Angeles on April 3, 1936.

Dr. Henry J. Young is reputed to be the first physician to locate in the then Village of Waseca when it started in the fall of 1867, although Dr. F. C. Peck came about the same time. Dr. Young was born in Vermont, June 9, 1831. He studied medicine with Dr. E. A. Knight of Springfield, Vermont. After practicing for two years in Vermont and New Hampshire, he came west to Sheboygan, Wisconsin, where he practiced until 1862. He was then commissioned Assistant Surgeon in the First Wisconsin Cavalry and went to the front with that Regiment. In the fall of 1864 he was appointed surgeon to the 47th Wisconsin Infantry where he served until the Regiment was mustered out at the close of the Civil War. He was then placed in charge of the General Hospital at Tullahome, Tennessee, where he served until the hospital was closed. He then returned to practice in Sheboygan until the fall of 1867 when he came to Waseca. In January, 1855, he was married to Miss Lucy Preston of Sheboygan. They had two sons, Carl H. and John C. Young, neither of whom are now living. *Childs History* of Waseca County, published in 1904, says of him:

> "As a physician and medical adviser he had few superiors. He was kind and considerate of the poor, always ready and willing to aid the distressed, even though there was no hope of reward for his services."

In 1898, after thirty years or more in Waseca, he moved to Alabama where he remained about one year, then to Lebanon, Oregon, where he died at the age of sixty-nine years on April 23, 1900.

That the doctors did not always get along well with each other in the early days is evidenced by the following affidavits and statements that appeared in the August 9, 1871, issue of the *Waseca News*. Dr. Jacob Brubaker and Dr. Young apparently were bitter enemies and Dr. Brubaker seems to have accused Dr. Young of trying to steal his patients. Dr. Robert Addison, formerly an eminent English surgeon, was visiting in the neighborhood for a few weeks and seems to have seen some cases in consultation with the local doctors. He, too, jumped into the fight with both feet, on the side of Dr. Brubaker, as evidenced by Dr. Addison's signed statement which is not mild, coming from an Englishman who was merely visiting in the community.

The following week, August 16, 1871, the *Waseca News* contained Dr. Young's "Reply to the Public"—his rebuttal to Dr. Brubaker's inspired statements. If Dr. Brubaker had any skin left on his body after that, it must have been severely blistered.

From the *Waseca News* for August 9, 1871, page 3, column 5.

To The Public

The following statements will explain themselves to the reader.

STATEMENT OF JOHN FREDERICKS.

Sunday last Dr. Young, of Waseca, called at my house, and asked about my wife who had had her arm broken. I told him that since Drs. Brubaker and Addison had set her arm she had done well. He then wanted to see her. I agreed to let him go in her room if he would not put his hands on her. He then went in and looked at her, and said to my wife that her arm was all wrong and out of place. He then said Dr. Gove had directed him to see about the case, and tried to pursuade me to have him and Dr. Gove set the arm over. I told him no; that I did not want too many doctors, and that I was satisfied with the way my wife was getting along. Dr. Young then said that Dr. Brubaker was a poor hand to manage such a case, that about eight weeks ago he set the elbow of a Norwegian, Ole Hansen; that it was poor work and not set at all, that a few days ago it took him (Dr. Young) and three other doctors all day to get it in place; and that any doctor who would manage a case as Dr. Brubaker did the Norwegian's elbow, was not a safe person to manage my wife's case or that of any one who was hurt.

John Fredericks.

County of Waseca, ss:

John Frederick being duly sworn says that the foregoing statement is his, signed by him, and that the same is true.

Subscribed and sworn to before me this 4th day of August, A.D. 1871.

H. P. Norton
Notary Public.

(Seal)

Statement of Peter Oleson Gjerde.

Ole Hansen stopped at my house when he hurt his elbow. My brother Charles went for Dr. Young, and I was present when he attended to him.

Peter Oleson Gjerde.

Peter Oleson Gjerde being duly sworn says that the above statement signed by him is true.

Dated, subscribed and sworn to before me this 5th day of August, A.D. 1871.

E. Cronkhite,
County Auditor

(Seal)

Statement of Doctor Addison

Waseca, August 5th, 1871

I hereby certify that about a fortnight ago I was invited by Dr. Young to meet him in consultation, with Drs. Gove and McIntosh, on the case of Ole Hansen with a dislocated elbow. He then informed me that about five weeks before the man had applied to him and that he had reduced the dislocation, and that some little time after he had left the county and had got to St. Peter and finding the limb out of joint he there obtained the help of some surgeons who did not succeed in reducing it. He then returned to Waseca where the operation was completed by the above named surgeons.

I further certify that I was present with Dr. Brubaker when he attended to the broken arm of Mrs. Frederick, and that his management of the case, was, in my opinion, strictly correct and judicious and fully merited the commendations and confidence of the patient and her husband.

I lament exceedingly to be compelled to animadvert upon the conduct of Dr. Young in these two cases, but must declare that in the whole course of my forty-five years practice, I never met with or heard of more despicable proceedings to obtain a patient, and could not have conceived it possible that a member of his noble profession could have descended to such falsehood and meanness.

Robert Addison, M.D.

Member of the Royal College of Surgeons, Licentiate of Apothecaries Hall, London and Edinburgh and Fellow of the Rhode Island State Medical Society.

I deem no apology necessary for making a statement of my relations to the above cases. One week previous to last Wednesday evening I was called to visit Mrs. John Fredericks, whom I found with a partially dislocated shoulder and a fracture of the arm bone near the shoulder joint. I requested assistance and was directed to bring Dr. Addison, who accompanied me the next morning. On last Tuesday morning I received an urgent message to visit the same patient. On my arrival the Rev. Father Baumen was ministering to her spiritual wants, and on entering the room I found her very much frightened, her first remark being "Doctor, I know I must die." She then stated that she had rested well Thursday, Friday and Saturday, but on Sunday became distressed, which condition was followed by fever, a hard chill and loss of sleep. After examining her case I assured her that everything was favorable, administered an anodyne, and she became reconciled; since which time her case has progressed favorably, considering her serious injury and the extreme heat of the last few days.

I will also state that Dr. Young in going to Mr. Frederick's without being sent for did an act that would disgrace any member of the medical profession; and in intruding himself at Mrs. Frederick's bedside and endangering her safety by false alarms, he resorted to little less than criminal means, with a view to secure her as his patient, and in telling Mr. Fredericks that I reduced the dislocated elbow of Ole Hansen, that it was "poor work and not set at all," using it as an argument with which to steal a patient, he practiced a scoundrel's audacity. The foregoing statements show who did that "poor work"—that it was Young; and for saying that I did it I brand him the author of an unmitigated falsehood.

August 5th, 1871

J. C. BRUBAKER, M.D.

From the *Waseca News* for August 16, 1871. Page 3, column 5.

Reply "To The Public"

Sunday, July 30th, I called at John Frederick's, met him at the door, asked for a drink of water, got it, walked into the room where his wife lay, remarking at the same time, "your wife has her arm broken." He replied "yes, it is fixed now. Dr. Brubaker was here Wednesday night, could not fix it, told me to keep cold water on it, he would bring another doctor in the morning. Dr. Addison came in the morning, took hold of it and set it easy." Mr. Fredericks said "wasn't it too bad my wife lay all night without her arm being set?" He said further, "my wife suffered much pain last night, very much pain—she feel very bad sick."

He asked me to look at it. He raised her up in bed, and I did look at it. I told him it was not quite in place, that the dressings were not good, and that they were heavy, pulling down on her shoulder. I told him it needed attending to—to get Dr. Addison to come and see it again, and get him to see that it was in place and that those dressings were removed and proper appropriate dressings were applied. If he could not get Dr. Addison, to get Dr. Gove. I offered to let Dr. A. have some splints and good dressings for the case; for he being here only temporarily, had no surgical applicances with him. I told him I would not let Brubaker have them for he would not know how to apply them.

I told him I had had a conversation with Dr. Gove in the morning about calling—he felt anxious to know if the arm was all right. I told Dr. Gove I would call and see. If there had been no Doctor there but Brubaker, it would be very sure to be wrong. I also told Fredericks that Brubaker was not, in my opinion, competent to manage any case where it required surgical skill—no more so, I said, than any man outside the medical profession with ordinary judgment; and I brought up several cases as examples of his poor work, and these were the cases I mentioned: Jerome Madden, Mr. Kinney's boy, Mr. Dunn, Mr. Fanning's boy, Mr. James. I also said we had a case no longer ago than last Tuesday, where the arm had been out six weeks, and we had a severe time breaking it over and getting the arm in good shape. This man's name, I told him was Ole Hanson. I advised him to have his wife's arm attended to at once. I told him that Dr. Addison was an old English surgeon, of great ability and skill; that I was sure of—and if he could not get him there within eight days from the time the arm was first set and take the responsibility of seeing that it was all right, to be sure and get Dr. Gove and not neglect it. He said if he could get Dr. Gove he was a good man as he wanted, that he wanted him in the first place. I will say here that Mrs. F.'s pulse was running about 120 when I called and she seemed very feverish, breathed very rapidly; the dressing was heavy, badly out of place and irritating. If I can get Mrs. Fredericks to consent, I will have a photograph of the dressing in the same position I then saw it.

In going to the bed side of Mrs. F. I did not commit any crime, but in leaving her in that suffering condition, her arm burdened with those rough, heavy splints pulling down on her weak, inflamed shoulder, partially out of joint then, and the muscles trembling and quivering like any limb out of joint, I did neglect a humane duty which I shall not be guilty of again soon.

Mr. Fredericks and his wife were both willing to receive relief from any source. With regard to my intruding myself in this case in order to obtain a patient, I will say that while I am making the practice of medicine and surgery my business I shall endeavor at all times and under all circumstances to relieve human suffering in all its forms to the extent of my ability —it matters not to me whether it be Dr. Brubaker's patient or whose patient it is. It matters not to me what name Dr. Brubaker calls these acts, but I have already repaired several of these poor jobs, free of charge, and I would not pass by a dog or a horse with a broken limb, without trying to relieve him.

And now, Jake, let us turn the allusion to crime. Did you commit a crime when you went into that speculum operation, in Wilton, for which you barely escaped what every one would say you justly deserved—the penitentiary? You either committed a great crime or else displayed more than your usual amount of ignorance. It was the opinion of physicians at Faribault, Northfield, Austin, at the Asylum and also at this office, where she was finally relieved, that you drugged Mrs. Eckert into that deplorable condition of mind that she was in for one and a half or two years.

You were cutting around here with an old gum lance, sawing little innocent babes' gums, from two months old upwards, until people did get disgusted with it. That was not all you did to those little innocents. While the gums were open and bleeding, you administered calomel to them sometimes in large and sometimes in small doses, under the head of some simple remedy.

This may seem incredible to many unsuspecting mothers. I will prove it to any one beyond the least shadow of a doubt—to some of you in the visible effects of the drug now—to others in a black and white record. The effects of calomel when taken into the stomach are to salivate, produce mercurial rheumatism, ulcers in the mouth, etc. When taken directly into the circulation through the open gums the effects are a hundred fold more disastrous, producing stiffness of the muscles of the neck and all its deplorable effects in a more aggravated form. Jake, I have known of your administering calomel to children who were but little sick, until you got up an aggravated form of mercurial disease and then you would begin to swab their throats and pitch into the new feature of the disease, remarking, with that Ethiopian Ivory expression of the eye "We Doctors can not always tell what pathological changes may take place." Why didn't you acknowledge the "corn" to Mr. Collins near Wilton, when you found you had got a disease easily cured with sulphur instead of small-pox, which you alleged it to be; or did you think you were fully chastised in getting that severe cold changing your apparel in that cold barn, when you got back to town? How much money did you say you made vaccinating that time?

Were you joking when you got a surgeon to come with great dispatch to meet you and operate for inguinal hernia on Mrs. Henry Shultz? When the surgeon came he informed you and the friends that there was no need of an operation—nothing there except what nature put there—a little paragoric and ginger tea will probably right the case and save further pain and expense.

Tell where that fellow is that was bumming around here with you two years ago who was introduced to your patients and mine, as State Medical examiner. Said he had examined all the Drs. here, found none competent but Brubaker. Pelsey. I suppose, though, he meant competent to drink as much whiskey as he could. Who created that office, who abolished it?

Jake, try and say some pleasant thing in your next communication. Tell how you enjoyed yourself at the picnic, south of Wilton that hot Sunday.

Tell us how that turn of the wrist is made—or, perchance, how you took a young lady to a ball and then she chose to stay with her friends, rather than trouble you to carry her home.

Say something funny; don't be engrossed all the time with calomel, turpentine and creosote.

H. J. Young, M.D.

(To be continued)

But nothing further on the subject ever appeared in the paper. Maybe the doctors settled their differences in a smoke-filled room or possibly the editors decided that it was "time for a change."

President's Letter

A PLATFORM PLANK

One of the strongest planks in the recently adopted Republican party platform is that on health insurance. The wording is firm and the meaning is clearly based on time-honored tenets. It states:

"We recognize that the health of our people as well as their proper medical care cannot be maintained if subject to federal bureaucratic dictation. There should be a just division of responsibility between government, the physician, the voluntary hospital, and voluntary health insurance. We are opposed to federal compulsory health insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight, and debased standards of medical care. We shall support those health activities by government which stimulate the development of adequate hospital services without federal interference in local administration. We favor support of scientific research. We pledge our continuous encouragement of improved methods of assuring health protection."

There are individuals who believe that a party platform is a mere formality—that it is a general statement not intended to be lived up to, but meant only to win friends and influence voters. However, there is a certain measure of assurance in a formal statement of views of a large party. A pledge has been made, and high-principled men will strive to keep it.

The medical profession can accept this statement on health insurance as a strong plank in the platform. As the ebb and flow of political tides progress in the next few months, its plank can be used by the profession to judge intelligently the principles of party standard-bearers.

Those who wish to keep American medical care from the greedy grasp of government, can hope that the plank proves not only to be temporarily strong, but that it will endure as a concept that embodies some of the finest of American principles.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

ACCIDENT AND HEALTH INSURANCE

Each year the Health Insurance Council makes an annual survey* of the accident and health insurance coverage in the United States. This council consists of nine associations in the insurance business, which in turn are made up of companies writing health coverages. The report is intended to provide information for medical groups and hospital administrations about health and accident insurance and this particular report provides figures of interest to physicians.

Up to the late 1930's most health and accident insurance was of the weekly indemnity type. Hospital insurance got its impetus about twenty years ago from the organization of the Blue Cross, and the growth of hospital insurance the past ten years has been phenomenal. Voluntary hospital insurance last year covered 86 million persons. It is perhaps not generally appreciated that insurance companies, by means of group and individual policies, provide for 44 million or over half of this total, whereas Blue Cross and plans sponsored by medical societies cover about 41 million.

Insurance against surgical care got a later start than hospital insurance. Nevertheless the growth of this type of insurance has been just as phenomenal, until today about 65 million individuals are protected against the need for surgical care. Group and individual policies carried by insurance companies total 43 million whereas Blue Shield protects about 24 million against this hazard.

Insurance against medical expenses has been more difficult to institute. Many insurance companies and organizations sponsored by individual societies have lost heavily by carrying this type of insurance. Restricted policies, however, are available, and about 12 million individuals are now protected by private companies and 14 million by Blue Shield. The total of 27,723,000 now covered represents a 28 per cent increase over the 21,589,000 covered at the end of the year 1950.

These figures all refer to voluntary hospital, surgical and medical care insurance. In addition, 39,702,000 of the 61,000,000 employed civilians are protected by voluntary insurance against loss of income due to disability. This protection is largely for off-the-job protection and three-fourths of it is written by insurance companies. Workman's Compensation cares for most of the on-the-job income loss.

To illustrate the growth of voluntary health and accident insurance, some 9 million additional individuals were added in 1951 to the list of those protected by hospital insurance; about 9 million to those carrying surgical risk insurance; and 6 million to those carrying medical care insurance.

From these figures are omitted those covered by Workmen's Compensation laws; total and permanent disability benefits included in many life insurance policies; 4,800,000 commercial accident policies providing disability indemnity for injuries; 9,500,000 group accidental death and dismemberment insurance policies; commercial accident policies covering travel hazards numbering 8,000,000; complete medical care for the armed forces and persons in public institutions, and medical care and pensions for war veterans.

It would seem that the American people are health-insurance-minded, have realized the advisability and almost necessity of carrying insurance against the cost of sickness and accidents, and prefer to carry their own insurance instead of adopting compulsory government insurance. It will be most interesting to observe the growth of this type of insurance in the future years and just what percentage of the population ultimately will be covered.

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*Accident and Health Coverage in the United States as of December, 1951. The Health Insurance Council, 488 Madison Avenue, New York 22, New York.

POLITICO-MEDICAL PROBLEMS

The speech* of the retiring president of the AMA, Dr. J. W. Cline, at the annual meeting held in Chicago in June gives a bird's eye view of what has transpired of national import medically, the past year. All members of the Association would do well to read it.

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*J.A.M.A. 149:853 (June 28) 1952.

The trend during the past year has been towards better medical care and an increase in the ratio of physicians to population. Interest in general practice and also in rural practice has been fostered, not only by the profession and the medical schools, but by the efforts of those in communities in need of physicians. This has resulted in more physicians locating in rural districts. These efforts should be increased.

He mentions the further growth of private insurance against hospital and medical care and emphasizes that more must be done to provide protection for the rural population. We might also add for insurance against chronic illness. He pleads for wholehearted support of such insurance by the profession, for such protection stands as a barrier against political medicine. The public and the hospitals, too, must co-operate.

Hospital costs have continued to increase, in keeping with the general inflationary spiral. This is to be expected, as sixty-five per cent of hospital costs is attributable to salaries and wages, and food costs are up.

Outstanding in the past five years has been the change in the position of the physician in the community. Instead of being an ideal whipping boy for any political demagogue, the profession has grown in strength, so as to be an unwise object of attack. The national educational campaign conducted so successfully by Clem Whittier and Leone Baxter is given credit for much of this change.

The attitude of the AMA in opposition to Federal Aid to medical education is emphasized. Federal Aid means Federal dictation and we want none of it. The American Medical Education Foundation supported by the profession and the National Fund for Medical Education backed by those who oppose Federal dictation in medical training will, it is hoped, solve the problem for the privately endowed medical schools, whereas the states should be able to support their own state universities and medical schools.

President Cline deals with the appointment of the Commission on Health Needs of the Nation by President Truman. There is good reason to believe that this commission was appointed with a time limit of a year, in order to keep the subject of health out of the political platforms. This it did not accomplish, for the Republican platform came out strongly in opposition to Federal Compulsory Health Insurance "with its crushing cost, wasteful inefficiency, bureaucratic dead weight and debased standards of medical care." It also declared that education is a local and state responsibility and not a Federal one. The Democratic platform, however, came out for private and public support of medical research, Federal aid for medical education, continued Federal aid for hospital construction, increased Federal aid for public health, especially in rural areas, and a commendation of President Truman for establishing a non-partisan commission to study and report on the health needs of the nation.

President Cline's address clearly defines the political issues affecting medicine today. The inaugural address of the new president, Dr. Louis H. Bauer, which was broadcast to the nation, indicated that the physicians of the country will continue the fight not only for the freedom of medical practice, but for the freedom of their fellow citizens against the inroads of socialism. They will also continue to concern themselves with politics, which is the duty of all Americans—doctors included.

PHYSICIANS, PHARMACISTS AND PRESCRIPTIONS

UNDER the Medical Economics department of this issue of the journal appears in some detail the requirements of the new prescription law, known as the Durham-Humphrey Act, which became effective April 26, 1952—six months from its passage by Congress.

According to the new law, drug manufacturers are required to label a drug as dangerous, which "because of its toxicity or other potentiality for harmful effect or the method of its use, or the collateral measures necessary to its use, is not safe for use except under the supervision of a practitioner licensed by law to administer such drug" with the label "Caution—Federal Law prohibits dispensing without prescription." The pharmacist is required to have a prescription, written or given over the telephone for the dispensing of a drug so labelled. Such a prescription cannot be refilled without a prescription, written or given over the telephone, by the physician. This is necessary and reasonable to prevent the patient from directing his own medication, possibly to his detriment. It means more work for the pharmacist in locating the prescribing physician. This only too often cannot be done promptly, and the patient waiting for the refill is likely to become irritated and demand that he receive his medicine and that the pharmacist obtain the physician's authorization if and when he can locate him. We mention the pharmacist's role in the matter of refilling prescriptions in order to promote understanding on the part of the prescribing physician who has only the inconvenience of answering a telephone call. These calls can, by the way, be minimized by writing on the original prescription: N.R. (non repetitive), or "may be refilled two (or three) times."

When it comes to the prescribing of narcotics, a prescription must be provided the pharmacist before the prescription is released to the patient. No telephone authorization for originals or refills is permitted, except that in case of an emergency a physician may telephone the prescription to the pharmacist, who may prepare it and deliver it upon receipt of the written prescription.

The insistence on the written prescription before delivery of narcotics may seem overcautious to the average physician, who as a rule has little to do with narcotic addicts. His point of view is doubtless quite different from that of the government narcotic agent and possibly from that of the pharmacist. The ruses perpetrated by addicts are notoriously clever.

In any event, the druggist is no more responsible for narcotic regulations than are the physicians. The new law is clear, and it is incumbent on physicians to co-operate to the fullest with the pharmacists in carrying out the regulations adopted in the interest of the public.

THE FATEFUL TWENTY-THIRD

We, the profession, caught as we are in a cleft stick, will watch the electioneering of the three main political parties and the results of their labours with mixed feelings. As citizens we are, for the most part, in that category known as the "middle-class vote" and as such are generally suspect. Each party will try to woo us on that score, with mild words but a shrewd heart. Should we think at all—which is most improbable, come the time of year—then we must balance all we hear against our traditional upbringing, and vote whichever way our thinking mind suggests. But as members of a once-noble and respected profession we are up against it: for all parties are pledged to maintain the social services; and that means, in greater or lesser degree, each of us. So on this we must all think as carefully as upon the civic score. Admittedly, the total voting proportion of the profession in relation to the whole community is small—approximately 0.2 per cent—but by virtue of our peculiar privilege we are able to sway, and in a subtle way, a greater proportion of other citizens than is the case of many individuals. Yet the question of the merit of a national health service is immediately divisable, from the professional point of view, into two most important sub-headings. First—the rather more altruistic in character—has the individual patient benefited from the recent extension of cover? and, second, has its introduction helped us as doctors to be better doctors?

If we search our hearts, what are we to answer to these two interdependent questions? Under the old scheme the middle classes were the ones who found illness such a financial burden, but they were proud of their achievements; the richer and the poorer could so easily get the best, either by paying handsomely or through voluntary service, financial and professional. And it was in such a system that the doctor held a position of trust and respect that was more precious than any financial reward. And now? The poor middle class is still the middleman. The rich can continue as they were wont; the poor are no longer so poor and can now get their demands fulfilled under threat of penalty to the doctor. The middleman cannot afford financially to pay twice over, nor can he afford in many cases the necessary time off to queue in surgery or hospital to receive the benefit of the National Health Service. But when we search our professional conscience, another question may rise from its dullness: are we giving better service to the community than before? And the answer?—unhappily, as yet, none has had courage enough to say that at heart many of us have an ugly feeling that the patient is worse off, for we have lost through bitterness or shear materialism or slanderous accusation that fundamental sense of respect and responsibility which made our calling what it was. So, ere we cast our vote in this election, let us pause awhile and think: if we can but think, then at least that will be a small ray of sunshine upon our otherwise ominously black horizon. The profession is in danger of being swept, by crude bureaucracy alone, into a maelstrom of swirling waters which can only spell absolute destruction to all its traditional best.—Editorial, *Medicine Illustrated,* February, 1950.

Note: The above editorial so well expresses the tragic result of socialization of the medical profession in Britain and the hopelessness as far as any remedial measures are concerned that it is being reproduced. It confirms the opinion generally accepted that medical care in Britain has deteriorated and the profession has lost its self-esteem and the respect of the public as a result of its socialization. To prevent such an outcome in our country, the medical profession has been exerting its best energies and will continue to do so.

There are certain diseases which notoriously increase the incidence of tuberculosis, diabetes mellitus and stenosis of the pulmonary valve of the heart, for instance. Whether diabetes acts by reducing the general resistance or whether the added sugar in the blood favors the growth of tubercle bacilli is a moot question. Stenosis of the pulmonary valve presumably acts by reducing the blood supply to the lungs and reducing local resistance. —George Blumer, M.D., Conn. State Med. J., May, 1952.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

PRESCRIPTION LAW REQUIREMENTS EXPLAINED

The words, "Caution: Federal law prohibits dispensing without a prescription," while directed to pharmacists, are now, more than ever, vitally important to the physician as well.

The Durham-Humphrey Act, governing the refilling of certain prescriptions, became effective on April 26, 1952. The importance of co-operation between physicians and pharmacists in making the letter of this law entirely effective cannot be overemphasized. The protection of the public is foremost, and compliance with the law in all respects is essential.

In general, the law now provides that whenever a drug or medicine carries the above words, the pharmacist must have the prescribing physician's authorization before it can be refilled. The doctor may delegate this authority to an employe for a prescription refill, or he may state on each prescription the number of times he wishes to have it refilled.

The Laws Says—

The letter of the law provides that such drugs or medicines carrying that inscription be dispensed only on:

1. A written prescription giving the date, name and address of the patient, item and quantity of drug prescribed, directions for use, and the legal signature of the prescriber.
2. A telephoned order directly to the pharmacist by the physician or by an authorized employe, giving the same information as specified above in (1).
3. Refills are permitted only when authorized orally or in writing by the physician or by an authorized employe. Physicians may also authorize refills by indicating on the original prescription the number of times the prescription may be refilled.

A majority of prescriptions written today carry this legend, and include such drugs and medicines as antibiotics, sulfa drugs, thyroid, benzedrine, dexedrine, amphetamines, stilbestrols, estrogens, and antihistamines.

State Laws Correspond

Corresponding laws in Minnesota covering barbiturates and narcotics outline conditions under which prescriptions for these drugs may be filled.

All prescriptions for or containing barbital and any derivative must be written in ink or typewritten, contain the name and address of the person for whose use it is intended, must state the item and quantity of the drug, full directions for use, the date, and signature of the prescriber. *No* barbiturate prescriptions can be refilled except with the written or verbal consent of the prescriber.

All prescriptions for narcotics must be in writing only; no oral or phone prescriptions are permitted. Prescriptions cannot be refilled. Prescriptions must contain the patient's name and address, item and quantity of drug prescribed, the prescriber's name, address, registration number and signature. The only exception to this is any codeine preparation containing not more than one gr. of codeine per ounce.

The federal Bureau of Narcotics regulation on narcotics says:

> "The furnishing of narcotics pursuant to telephone advice of practitioners is prohibited, whether prescriptions covering such orders are subsequently received or not, except that in an emergency a druggist may deliver narcotics through his employe or responsible agent pursuant to a telephone order, provided the employe or agent is supplied with a properly prepared prescription before delivery is made, which prescription shall be turned over to the druggist and filed by him as required by law."

Under the Durham-Humphrey act, the pharmacist is legally bound to observe all of its provisions. This, naturally, will entail many additional phone calls to doctors' offices. This extra burden on the doctor is a necessary one. In aiding the pharmacist to comply with the law, it is vital that physicians co-operate fully with them. Less trouble and confusion will result, as well as the realization of the important part played in protecting the public against the flagrant and indiscriminate use of the drug and medicine prescription and its refilling.

SURVEY SHOWS FLAWS IN FEDERAL HEALTH INSURANCE

Outlining four major objections to any federal compulsory health insurance proposal, a recent survey in the *Quarterly Journal of Economics* at Harvard university listed those drawbacks to be:

"1. The government should not compel people to spend money on any particular service unless that service cannot be obtained in any other way or unless the government can provide the service more efficiently than private enterprise.

"2. Costs are too high.

"3. The quality of medical care deteriorates under a compulsory insurance scheme.

"4. Doctors will not accept it."

Insurance Now Available

Regarding the first point, the authors, economists Rita Ricardo Campbell and W. Glen Campbell, state that at present those who want health insurance can buy it as they buy any other goods or service. Voluntary health insurance plans are available to the average citizen at a cost no greater than what it would be under a compulsory, government-run system. The survey notes that Dr. Dean A. Clark, in his research report to the Senate subcommittee on health, estimated that "75 million persons were protected in full or in part by voluntary insurance against the costs of medical and hospital care. There can be no question of the fact that the voluntary insurance plans are expanding in areas where there is a demand and a need for them, it is added."

Costs Increase

On the second point, involving costs of a compulsory plan, the article points out that the experiences of all countries which have adopted this form of health insurance show that the costs of medical care increase greatly. Quoting several estimates, the authors observe, "It would be interesting to know how large a percentage of the population would favor compulsory health insurance if they were told it would cost them a payroll deduction of from 6 to 8 per cent."

Quality Drop Reported

A drop in the present high quality of medical care would be part of the proposed compulsory health insurance scheme. The study indicates that the great increase in demand for medical attention strains existing personnel and facilities and leads to some deterioration in services rendered. The report states: "Doctors' offices become crowded with patients who are forced to wait, often many hours, to be examined. The time and thoroughness devoted to each case must be reduced."

U. S. PHYSICIAN COUNT REACHES ALL-TIME HIGH

The total number of physicians in the United States has reached an all-time high of 211,680 as of the end of 1951. The annual licensure report of the American Medical Association notes that this represented a net increase of 2,640 doctors during 1951.

In 1951 there were 6,282 persons who for the first time, obtained licenses to practice in the United States. The net gain of 2,640 for the year was after an estimate of the number of deaths of physicians based on reports to the American Medical Association.

New York Leads

The report showed that New York had the greatest number of first-time licentiates with 743; California was second with 526. Next in order were Illinois, 437; Ohio, 394; and Pennsylvania, 388. Increases in the number of first-time licentiates, as compared with 1950 figures, occurred in twenty-six states.

Directional Moves Shown

The report reveals the general trend in locations of doctors throughout the nation. California issued the greatest number of licenses, 1,367. The report states: "Of these, 844 represented licensures by reciprocity or endorsement of credentials, including 216 to candidates who held certificates of the National Board of Medical Examiners. Illinois provided California with the largest number of doctors under state reciprocal licenses, 95; Minnesota was second with 53. California state board examinations resulted in 523 licenses."

Training Rated High

The report indicated the high medical training rating of the medical schools of the United States, all seventy-two of which are now approved by the American Medical Association's Council on Medical Education and Hospitals. Of 5,018 graduates of existing United States schools who last year took written examinations for licenses, 4,874, or 97.1 per cent, passed. Rates for other schools were considerably lower. Other schools include Canadian schools, extinct approved schools, foreign schools, unapproved schools and schools of osteopathy. Altogether, 6,473 persons took state board examinations; 5,716, or 88.3 per cent, received passing grades.

This notable increase in total number of physicians in the United States could hardly be a better answer to those who still advocate government-controlled medicine. Their arguments have been based on the contention that there has been and still is a tragic doctor shortage in America. Concrete action and constant improvement over the years has come largely from the efforts of the medical profession itself. With this larger figure comes assurance to Americans that medical care and service will be even better in the future than the high quality of the past and present.

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

MEDICAL LICENSE OF ANOKA PHYSICIAN REVOKED

Re. John J. Stratte, M.D.

On July 18, 1952, the Minnesota State Board of Medical Examiners revoked the medical license formerly held by John J. Stratte, M.D., Anoka, Minnesota. Dr. Stratte, thirty-nine years of age, was before the Medical Board on several occasions in connection with disciplinary proceedings. The last citation was issued on April 15, 1950, and charged Dr. Stratte with habitually and excessively indulging in the use of alcoholic liquors and other detailed and specified violations of law. Dr. Stratte was given a hearing on that citation on July 14, 1950, and was placed on probation upon condition that he abstain, in every manner, from the use of alcoholic liquors and beverages. Dr. Stratte repeatedly violated the stipulation entered into by him in writing with the Minnesota State Board of Medical Examiners, and as a result, Dr. Stratte was notified to appear before the Medical Board on July 18, 1952. Dr. Stratte failed to appear and testimony was taken concerning Dr. Stratte's misconduct as a physician, with the result that his license was revoked for immoral, dishonorable and unprofessional conduct as defined by law.

Dr. Stratte was born at Dawson, Minnesota, in 1913, and received a medical degree from Rush Medical College in 1942. He was licensed in Minnesota by examination in 1943.

PRACTICAL ASPECTS OF THE Rh FACTOR

(Continued from Page 731)

the possibility of bearing a living child who can be saved by proper treatment.

Tubal ligation may be permitted women in their late thirties. In young women tubal ligation is inadvisable because of the possibility of remarriage to an Rh-negative man, and because it is always possible that some means of combatting the action of antibodies will be discovered while the patient is still young enough to have children.

Summary

The Rh status of every recipient should be determined prior to a blood transfusion and Rh-negative individuals should be given Rh-negative blood.

Antibody determinations should be made on all Rh-negative women as early in pregnancy as possible. Antibodies present in the first trimester usually produce erythroblastosis in the infant. In general, the higher the titer, the poorer the prognosis. Antibodies appearing for the first time in the third trimester of pregnancy are rarely responsible for more than a very mild form of the disease.

Rh immunization is permanent, and at present there is no known way of preventing maternal antibodies from destroying fetal blood cells.

The preferred treatment of an infant with erythroblastosis consists of replacement transfusion, repeated as often as necessary.

Minnesota State Medical Association

HOUSE OF DELEGATES—SUMMARY OF PROCEEDINGS*

Minneapolis Session—May 26, May 27 and May 28, 1952

First Meeting, Sunday, May 25, 1952

Gold Room, Hotel Radisson
Minneapolis, Minnesota

The Ninety-ninth Annual Session of the House of Delegates of the Minnesota State Medical Association was held in the Gold Room, Hotel Radisson, Minneapolis, Minnesota, beginning at 2 p.m., Dr. C. G. Sheppard, Hutchinson, Speaker, presiding.

After calling the meeting to order, and House acceptance of the minutes of the 1951 session, Dr. Sheppard introduced Dr. R. L. J. Kennedy, Rochester, president of the Association and Dr. A. H. Heidner, president of the State Medical Society of Wisconsin, who spoke briefly to the House of Delegates. Other introduced guests included Dr. R. G. Arveson, Chairman of the Council of the State Medical Society of Wisconsin; Dr. V. E. Ekblad, a councilor from Wisconsin; Mr. Charles Crownhart, Executive Secretary of the State Medical Society of Wisconsin and his assistant, Mr. Roy Ragatz.

Dr. John M. Waugh, Rochester, presented the report of the Finance Committee. Noting the accumulating operating deficit, caused mainly by a decrease in paid memberships, Dr. Waugh's committee recommended to the House of Delegates that a $10 special assessment be levied on every active member of the Association, with the view toward eventually raising annual dues to $40. The House accepted the Finance Committee's report.

Report of the Council

Dr. Sheppard then called on Dr. O. J. Campbell, chairman of the Council, to present the report of the first meeting.

Dr. Campbell: The first meeting of the Council in connection with the Ninety-ninth Annual Meeting of the Minnesota State Medical Association was held on Saturday, May 24, 1952, at 2 p.m. in the Hotel Radisson. . . . Dr. J. M. Waugh, chairman of the Finance Committee made his financial report to the Council.

. . . the following applications for Temporary Affiliate Memberships were approved: Dr. Nicholas I. Ardan, Jr., Rochester; Dr. Clair F. Benoit, Rochester; Dr. N. H. Chiles, Rochester; Dr. Vernon L. Cofer, Jr., Rochester; Dr. James J. Crumbley, Jr., Rochester; Dr. Jack Dunn, Jr., Rochester; Dr. Frank G. Gatchell, Rochester; Dr. Robert C. Green, Jr., Rochester; Dr. Harold C. Habein, Jr., Rochester; Dr. Robert E. Hansen, Rochester; Dr. Prescott B. Holt, Rochester, Dr. Richard L. Jackson, Rochester; Dr. Ralph A. Kilby, Rochester; Dr. Harry G. Kroll, Rochester; Dr. Joseph J. Kurtin, Blooming Prairie; Dr. Henry J. Kurtin, Blooming Prairie; Dr. Richard J. Lescoe, Rochester; Dr. Ralph Lev, Rochester; Dr. Thomas W. Mears, Rochester; Dr. J. D. Mortensen, Rochester; Dr. William C. Nelson, Rochester; Dr. Mathew E. O'Keefe, Rochester; Dr. William F. Peters, Jr., Rochester; Dr. John R. Pettet, Rochester; Dr. Frederick R. Ritzinger, Lakefield; Dr. Everett J. Schmitz, Seattle, Washington; Dr. Ballard F. Smith, Rochester; Dr. Grant M. Stevens, Rochester; Dr. Joseph C. Tarantino, Rochester; Dr. Richard M. Ulery, Rochester; Dr. James D. Wentzler, Rochester; Dr. George Werner, Minneapolis; Dr. Roy A. White, Rochester; Dr. Richard K. Winkelmann, Rochester.

. . . the following applications for Affiliate Memberships were approved: Dr. David M. Berkman, Oronoco; Dr. Henry M. Broker, Minneapolis, Dr. Donald H. Daniel, Minneapolis; Dr. Rosemary R. Frear, Minneapolis; Dr. William H. Henney, McIntosh; Dr. Christian A. Rohrer, Des Moines, Iowa.

. . . the following applications for Life Memberships were approved: Dr. Alexander H. Brown, Pipestone; Dr. Hermanus De Boer, Edgerton; Dr. Charles N. Hensel, St. Paul; Dr. Andrew D. Hoidale, Tracy; Dr. Harry G. Irvine, Minneapolis; Dr. Carleton G. Kelsey, St. Paul; Dr. Fred H. Powers, Rochester; Dr. George F. Reineke, New Ulm; Dr. William H. Replogle, Los Angeles, California; Dr. John B. Robertson, Minneapolis; Dr. Dana C. Rood, Santa Barbara, California; Dr. Fredk. C. Schuldt, St. Paul; Dr. Walter H. Valentine, Tracy; Dr. Alfred E. Walker, St. Paul; Dr. Leon A. Williams, Minneapolis; Dr. Rasmus V. Williams, Rochester.

Dr. Waugh, chairman of the Special Committee appointed for consideration of a request for re-districting Councilor District No. 1, reported that he and the other two members of his committee had conducted a recent study of this problem. The committee submitted possible plans to alleviate this problem of unequal representation in this district. After considerable discussion, the Council voted to invite the delegates representing the county medical societies within this district to meet with the Council on Monday, May 26, to discuss the problem further.

. . . Council resolution proposing invocation at House of Delegates sessions was recommended for House of Delegates approval.

. . . Council recommended . . . Dr. Ivar Sivertsen for reappointment to the Minnesota State Board of Medical Examiners by virtue of the many years of faithful and meritorious service that he has rendered to the State of Minnesota.

. . . Council voted to entertain members of the senior class of the University of Minnesota Medical School at a joint dinner with Council to acquaint these students with the purposes and functions of medical organization.

After discussion of a request for state medical association aid in implementing a change in the existing law requiring licensure of resident physicians in hospitals in the state, Council decided that no effort should be made at this time to alter the existing law.

**In accordance with action by the Council of the Minnesota State Medical Association in 1944, publication of the proceedings of the House of Delegates is limited to summary.*

Council went on record as supporting the recommendation of the Sub-Committee on Physical Medicine and Rehabilitation to the Governor's Mental Health Advisory Committee, that, in the central office and in mental hospitals throughout the state, the therapeutic activities program should be under the direction of occupational therapists.

Council referred to the Committee on Nervous and Mental Diseases the proposed program of the Minnesota Society for the Mentally Retarded for the establishment of a new state institution for the mentally retarded, and securing an appropriation for such institution from the state legislature.

. . . Council voted to notify the Aetna Casualty and Surety Company of cancellation of the Association's group malpractice insurance policy, in view of the fact that this type of coverage is available to the individual physician at approximately the same rate as the group rate. Each individual physician should accordingly notify the Aetna Company of his intent to cancel out his policy thirty days in advance of cancellation.

Resolutions from the Arkansas Medical Society and the Tennessee State Medical Association, disapproving certain policies of the Veterans Administration hospitals in caring for non-service connected disabilities, were considered by Council. Council went on record as endorsing in principle the Tennessee resolution, requesting that AMA delegates lend support to any similar resolution.

. . . Council was acquainted with two resolutions from the Minnesota State Pharmaceutical Association thanking the Minnesota State Medical Association for its previous stand in condemning the physician-owned clinic pharmacy, and another resolution expressing appreciation for support in creating and maintaining a friendly relationship between the two professions.

The report of the Council was accepted as a whole, and Speaker Sheppard then called for reports of the reference committees. Dr. R. F. Hedin of Red Wing gave the report of the Reference Committee on Medical Education Reports.

Medical Education Reports

Dr. Hedin: The Reference Committee on Medical Education Reports met this morning. All members were present. The following reports were considered:

Committee on Cancer—A. H. Wells, M.D., Duluth, Chairman
Committee on Conservation of Hearing—L. R. Boies, M.D., Minneapolis, Chairman
Committee on First Aid and Red Cross—John S. Lundy, M.D., Rochester, Chairman
Heart Committee—F. J. Hirschboeck, M.D., Duluth, Chairman
Committee on Hospitals and Medical Education—H. S. Diehl, M.D., Minneapolis, Chairman
Committee on Public Health Nursing—Mario Fischer, M.D., Duluth, Chairman
Committee on Syphilis and Social Diseases—P. A. O'Leary, M.D., Rochester, Chairman
Committee on Tuberculosis—J. A. Myers, M.D., Minneapolis, Chairman
Committee on Vaccination and Immunization—R. N. Barr, M.D., Minneapolis, Chairman

The Committee accepted the reports with the following recommendations: that the Committee on Conservation of Hearing be furnished some information regarding the scope of work of the Audiological Clinic being instituted at the University; that the fine work being done by the Committee on First Aid and Red Cross be continued; that the committee agrees with the Committee on Cancer, believing that work should go on in the cancer detection field by the private physician, and that if a form which would be more suitable for use by the busy physician were available, that more information regarding cancer detection in Minnesota would be possible; that the Heart Committee study the feasibility of going into the rural communities and educating the medical profession in the fields of congenital heart disease for quicker detection and treatment; recognizes the extensive work done by the Committee on Hospitals and Medical Education and suggests that the committee contact all institutions of higher education in the state in an endeavor to interest them in establishing courses in medical technology, and to continue encouraging the formation of more practical nursing schools in the state; recognizes the fine work done by the Committee on Public Health Nursing; recognizes the fine work being done by the Committee on Syphilis and Social Diseases, noting that the incidence of these diseases is being reduced; that the recommendations of the Committee on Tuberculosis regarding the disease in displaced persons should be followed.

The House of Delegates approved the report of the Reference Committee on Medical Education Reports as a whole. Dr. Sheppard then called for the Report of the Reference Committee on Miscellaneous Scientific Reports, Dr. W. W. Yaeger, Marshall, Chairman.

Miscellaneous Scientific Reports

Dr. Yaeger: The Reference Committee for Miscellaneous Scientific Reports met in the Radisson Hotel on May 25, 1952, and considered the following reports:

Committee on Anesthesiology—R. C. Adams, M.D., Rochester, Chairman
Committee on Child Health—G. B. Logan, M.D., Rochester, Chairman
Committee on Chronic Illness—E. L. Tuohy, M.D., Duluth, Chairman
Editorial Committee—George Earl, M.D., St. Paul, Chairman
Committee on Diabetes—John R. Meade, M.D., St. Paul, Chairman
Committee on Fractures—E. T. Evans, M.D., Minneapolis, Chairman
Committee on General Practice—R. H. Creighton, M.D., Minneapolis, Chairman
Historical Committee—Robert Rosenthal, M.D., St. Paul, Chairman
Committee on Industrial Health—L. S. Arling, M.D., Minneapolis, Chairman
Committee on Maternal Health—J. J. Swendson, M.D., St. Paul, Chairman
Committee on Medical Testimony—E. M. Hammes, Sr., M.D., St. Paul, Chairman
Committee on Military Affairs—Jan H. Tillisch, M.D., Rochester, Chairman
Committee on Nervous and Mental Diseases—Walter P. Gardner, M.D., St. Paul, Chairman
Committee on Ophthalmology—T. R. Fritsche, M.D., New Ulm, Chairman
Committee on Public Health Education—F. J. Elias, M.D., Duluth, Chairman
Committee on Radio—Robert M. Burns, M.D., St. Paul, Chairman
Speakers Bureau—Haddon M. Carryer, M.D., Rochester, Chairman

The Committee approved the reports with the following recommendations and comments: that caution be taken regarding commitment of old age individuals unnecessarily to the state nervous and mental institutions; that the Committee on Diabetes continue their efforts to establish a diabetic camp for diabetic children of the state; that the component medical societies take more responsibility in accumulating historical materials as an aid to the Historical Committee; that the medical profession be cautioned against the issuance of certificates for unwarranted absenteeism; that every member of the medical profession give his full cooperation in transmitting information to the Committee on Medical Testimony, calling attention to the fact that it is held in strictest confidence; that better publicity be given to the work of the Committee on Military Affairs and that its spheres of activity might include close study of the Reserve Program of the Armed Forces as it involves physicians.

The House of Delegates accepted the report of the Reference Committee on Miscellaneous Scientific Reports.

Speaker Sheppard then called on Dr. C. L. Sheedy, Austin, Chairman of the Reference Committee on Medical Economics Reports, for his committee's report.

Medical Economics Reports

Dr. Sheedy: The Reference Committee on Medical Economics Reports met in the Hotel Radisson on May 25, 1952, and considered the following reports:

Editing and Publishing Committee—E. M. Hammes, Sr., M.D., St. Paul, Chairman
Committee on Hospitals and Professional Relations—J. M. Stickney, M.D., Rochester, Chairman
Committee on Interprofessional Relations—Walter P. Gardner, M.D., St. Paul, Chairman
Medical Advisory Committee—W. H. Hengstler, M.D., St. Paul, Chairman
Committee on Medical Economics—George Earl, M.D., St. Paul, Chairman
Committee on Medical Ethics—R. D. Mussey, M.D., Rochester, Chairman
Committee on University Relations—F. J. Elias, M.D., Duluth, Acting Chairman

The Committee accepted all reports, except that of the Committee on University Relations, with the following recommendations and comments: that the Committee on Interprofessional Relations consider a plan whereby local medical societies institute programs whereby they or an allied professional group such as the medical auxiliary or a nursing club initiate a program for senior high school girls to become acquainted with advantages offered by nursing and medical technology; that physicians, in buying malpractice insurance should keep in mind that malpractice insurance does not necessarily cover him for acts that are not malpractice, such as assault or slander; that a definite program of indoctrination in medical ethics and medical practice should be established for physicians just entering medical practice as well as the senior medical students, interns and residents of the state, and that a panel of physicians versed in malpractice cases be invited to talk to these groups on such subjects as the doctor in court and other legal tactics.

The House of Delegates heard considerable discussion and further explanation of the Rural Medical Scholarship plan, reported through the Committee on University Relations and the special Scholarship Selection Committee. After discussing details of operation and methods of administration, the House of Delegates accepted the report of the Reference Committee on Medical Economics with the exception of that committee's rejection of the student scholarship plan. The House accepted a motion approving the plan as originally set up by the Scholarship Selection Committee and the Committee on University Relations.

Dr. Sheppard then called on Dr. O. J. Campbell, Chairman of the Council, to present the balance of his report.

Dr. Campbell: Council met this morning with all officers and councilors in attendance, plus several guests.

. . . Dr. J. A. Bargen, Chairman of the Committee on Medical Service, acquainted Council with his committee's views on the Minnesota State High School League's schedule of maximum allowances for 1951-52, stating that his committee felt that the fees should be continued at the present level but that the fees are too low to be accepted as complete compensation for injuries received.

. . . Council recommended that, because of the illness of Dr. J. F. Norman, serving as Chairman of the University Relations Committee, Dr. F. J. Elias continue to serve as acting chairman.

. . . Council voted support of the resolution of the Minnesota Society of Clinical Pathologists opposing any move to obtain American Medical Association approval of a specialty board in medical microbiology which will certify non-physicians in the field of medical practice.

. . . Council directed the Association's Cancer committee to work with the local and national cancer societies in developing a standard form which will embody an adequate examination for cancer detection.

. . . Council discussed thoroughly the problem that has been created by a reduction of our Delegates to the American Medical Association from four to three on the basis of our paid membership in the AMA. The proposed plan is to try to seat all four delegates at the meeting, but if this is impossible, to make a concerted effort to gain in membership during 1952, to enable a resumption of the four-man delegation in 1953.

. . . Council granted approval to the Maternal Mortality Committee to submit reports of maternal deaths investigated to the doctors concerned without assessment of responsibility.

. . . Council presents the name of Dr. J. A. Bargen for re-election as a delegate for the years 1953 and 1954.

The House of Delegates next heard a supplementary Council report from the Committee on Group Health and Accident Insurance, which outlined certain principles which underwriters must meet to qualify as having policies available for advocation to the membership. The House accepted the report of the Council as a whole.

Speaker Sheppard next called for the report of the Reference Committee on Miscellaneous Medical Economics Reports, Dr. A. B. Hunt, Rochester, Chairman.

Dr. Hunt: The Reference Committee for Miscellaneous Medical Economics Reports met in the Radisson Hotel on May 25, 1952, and considered the following reports:

Insurance Liaison Committee—Clarence Jacobson, M.D., Chisholm, Chairman
Committee on Medical Service—J. A. Bargen, M.D., Rochester, Chairman
Committee on Rural Medical Service—Paul C. Leck, M.D., Austin, Chairman
Committee on State Health Relations—C. E. Proshek, M.D., Minneapolis, Chairman
Committee on Veterans Medical Service—Ralph H. Creighton, M.D., Minneapolis, Chairman

The committee accepted the committee reports with the following comments and recommendations: that the House of Delegates and Council support the further efforts of the Insurance Liaison Committee to bring to fruition the vision that the late Dr. Adson and other members of the committee had for the Minnesota Medical Insurance Plan; that the Committee on Rural Medical Service arrange with the Minnesota Society of Clinical Pathologists and the Minnesota Radiological Society for regular x-ray and diagnostic services and for routine pathologic study of all tissues removed where such services are not already satisfactorily in effect.

The report was accepted as a whole by the House and the Speaker called for the report of the Reference Committee for Officers and Councilors Reports, Dr. L. E. Steiner, Albert Lea, Chairman.

Dr. Steiner: The Reference Committee for Officers and Councilors Reports met in the Hotel Radisson on May 25, 1952, and the following reports were discussed: Secretary's and Executive Secretary's Report, Councilor Reports from Districts One through Nine.

The report of the Chairman of the Council was accepted, noting the initiation of the rural medical school scholarship, urging House consideration of the proposed increase in membership dues, recommending that the House should be brought up to date on the status of the malpractice insurance policies and rates.

The reports of the Councilors of the nine districts were accepted.

The committee accepted all proposed changes in the Constitution and By-Laws proposed by the Council, and these will be presented in a separate report.

The House of Delegates accepted the report as a whole and then discussed and approved the numerous changes in the Constitution and By-Laws as approved by the Reference Committee for Officers and Councilors Reports. (Changes reviewed completely elsewhere in this issue.)

The House of Delegates adjourned at 5:45 p.m.

Second Meeting, Sunday, May 25, 1952

Gold Room, Hotel Radisson

Minneapolis, Minnesota

The second meeting of the House of Delegates of the Minnesota State Medical Association reconvened in the Gold Room of the Hotel Radisson, Minneapolis, Minnesota, at 8 p.m., with Dr. Sheppard presiding.

Dr. Sheppard called on Dr. Wesley Spink to give the report of the Minnesota Medical Foundation. Dr. Spink reported that during the current year, the Foundation awarded ten scholarships of $500 each. The Foundation has nearly 1,000 members.

The House next heard the report from the University of Minnesota Medical School, presented by Dr. H. S. Diehl, who reported that the school accepted between 125 and 130 students annually into the Freshman class. Dr. Diehl also reported on the progress of the building project at the medical school.

Dr. Sheppard called for the report of the Minnesota State Board of Medical Examiners, presented by Dr. F. H. Magney of Duluth. During 1951, 300 medical licenses were issued, 166 by reciprocity from other states, and 39 on the basis of the licensing by the National Board of Medical Examiners, the remainder by examination.

Dr. Raymond Bieter of Minneapolis then presented the report of the Minnesota State Board of Examiners in the Basic Sciences. He noted that a total of 808 individuals took the basic science examination during the past year, with 475 failing, making a failure rate of 58.7 per cent.

Dr. A. J. Chesley presented his report from the Minnesota Department of Health. This was followed by the report of the Old Age Assistance program under the Minnesota Division of Social Welfare, presented by Mr. Alfred Angster, stating that expenditures for medical care under this program for 1952 were estimated to be between eight and nine million dollars.

The report of Minnesota Medical Service was presented by Dr. E. J. Simons, Medical Director for Minnesota Blue Shield. He reported that much progress had been made and called for co-operation from physicians.

The Speaker then called for the Necrology Report, read by Dr. Haddon M. Carryer of Rochester. A moment's silence was observed.

The meeting adjourned at 10:45 p.m.

Third Meeting, Monday, May 26, 1952

Gold Room, Hotel Radisson

Minneapolis, Minnesota

The House of Delegates reconvened at 1:30 p.m. with Speaker C. G. Sheppard presiding.

The Speaker called for the report of the special committee to study the indigent doctor problem. Dr. W. R. Humphrey, Stillwater, Chairman, reported his committee's views that a definite need exists and asked that a voluntary contribution of $10 or more per member be solicited through the state office, to be administered through the county societies. The House voted approval of the program.

Speaker Sheppard next called for the report of the Resolutions Committee, Dr. F. J. Hirschboeck, Duluth, Chairman. Dr. Hirschboeck requested that in the future, resolutions should reach the committee within a specified deadline, so that the committee could have ample time to discuss and pass on resolutions.

Resolutions Committee Report

WHEREAS, the House of Delegates desires to record its appreciation of the individuals and organizations whose efforts have contributed to the success of the ninety-ninth annual meeting of the Minnesota State Medical Association,

THEREFORE, BE IT RESOLVED, that the following be apprised of the Association's grateful recognition of their co-operation:

The Officers and Members of the Hennepin County Medical Society and its Auxiliary and the Committee on Local Arrangements, for a well co-ordinated arrangement of facilities for the events of the Convention and for their cordial hospitality to Convention guests,

The Mayor of Minneapolis, the Minneapolis Chamber of Commerce, and the management and personnel of the Minneapolis hotels for welcoming Minnesota physicians and their guests and assuring them a pleasant stay in Minneapolis,

The newspapers and radio stations which co-operated in transmitting to the public the news of medical developments which are of interest and concern to the entire state.

* * *

WHEREAS, the serious nature of state, national, and world affairs today warrants seeking divine guidance and aid, and

WHEREAS, it is customary practice for most legislative bodies to convene their meetings with a solemn word of prayer,

THEREFORE, BE IT RESOLVED, that the House of Delegates of the Minnesota State Medical Association begin all meetings with an invocation, such invocation to be rotated annually among the different religious faiths.

* * *

WHEREAS, it appears desirable that medical students be impressed with the opportunity afforded in general practice, and the existing need for general practitioners,

AND WHEREAS, in furtherance of this purpose, and also to provide a more extended means of orientation into actual practice, senior medical students should be given the advantage of working with general practitioners before their clerkship begins,

THEREFORE BE IT RESOLVED, by this Society, that a preceptorship of about three months duration between the junior and senior years of medical students is deemed advisable,

That such preceptorship be on a voluntary basis, or otherwise as may be determined in the recommendations of the appropriate committee assigned the task of working out details incident to such preceptorship,

That it be requested that the Committee on Hospitals and Medical Education be so assigned, to work with the Medical School Administration of the University toward the establishment of proposed preceptorship.

This resolution was referred to the Committee on Hospitals and Medical Education.

* * *

WHEREAS, attention has been called to certain dissatisfaction centering around the apparent unwillingness of some Medical School department heads to call in practicing physicians from the Minneapolis and St. Paul areas, as well as outside these areas, to lecture to medical students,

AND WHEREAS, it appears desirable to foster better working relationships existing between the Medical School faculty and the practicing physicians,

THEREFORE, BE IT RESOLVED, that the Hospitals and Medical Education Committee be authorized to inquire relative to the same and report their findings and recommendations to the House of Delegates in the year 1953.

This resolution was referred to the Committee on Hospitals and Medical Education.

* * *

WHEREAS, an application is presently being processed with the intent of obtaining AMA approval of a Specialty Board in Medical Microbiology which will certify non-physicians as diplomats in a field of medical practice,

AND WHEREAS, there is already in existence an American Board of Pathology, which can provide certification of properly qualified physicians in the field of Medical Microbiology,

NOW, THEREFORE, BE IT RESOLVED, that the House of Delegates reaffirm its approval of the essentials for an approved Examining Board in a Medical Specialty, including the principles that applicants for examination must be graduates of a Medical School approved by the Council on Medical Education and Hospitals and must be licensed to practice medicine,

AND BE IT FURTHER RESOLVED, that the House of Delegates instruct the Council on Medical Education and Hospitals to limit its approval of Specialty Boards to those which can comply with these essentials, in order to safeguard the interests and welfare of patients.

* * *

WHEREAS, there have been numerous complaints from members of county societies as to the method of admission and the disposition of patients examined at the University of Minnesota Cancer Detection Center,

AND WHEREAS, there have been complaints about the publicity emanating from the Cancer Detection Center which tends to magnify the importance of group examination,

AND WHEREAS, there has been some question as to the ratio between the costs involved and the positive findings obtained,

THEREFORE, BE IT RESOLVED, that the House of Delegates of the Minnesota State Medical Association evaluate the operation of, and the advisability of, continuance of the Cancer Detection Center.

* * *

WHEREAS, State Health Regulation Number 1001 which states that it shall be the duty of any physician or midwife in attendance on, or in charge of, a confinement case to treat the eyes of every newborn babe with a 1% solution of silver nitrate,

AND WHEREAS, the use of silver nitrate in the eyes of newborn very frequently causes marked irritation,

AND WHEREAS, there are other preparations just as efficient but less irritating,

THEREFORE, BE IT HEREBY RESOLVED, that State Health Regulation Number 1001 be modified.

This resolution was referred to the Child Health Committee.

* * *

WHEREAS, the hospital and medical care of the veteran with service connected disability or disease and the care of the medically indigent veteran with non-service connected disability or disease is and should be the just concern of the public and the medical profession, and

WHEREAS, the free care of the veteran with non-service connected disability or disease who can pay for his hospitalization and medical care is contrary to our traditional system of government and is an unwarranted burden on the taxpayer and threatens the quality of care to the deserving veteran by overloading the professional services of Veterans Hospitals, and

THEREFORE, BE IT RESOLVED, that the House of Delegates of the Minnesota State Medical Association goes on record as requesting its delegates to the American Medical Association to promote this position. Copies are also to be furnished the local and national offices of the Veterans Administration.

* * *

WHEREAS, the principles of medical ethics specifically condemn consultation with others than licensed doctors of medicine, and

WHEREAS, such consultation lowers the honor and dignity of the profession, and

WHEREAS, such consultation has brought about distress and hardship to members of the American Medical Association elsewhere,

THEREFORE, BE IT RESOLVED, that on complaint of any member of this Society or members of any constituent body of the American Medical Association offenders be reminded of a violation of the principles of medical ethics by the appropriate committees of this Society or constituent county or regional medical societies.

This resolution was referred to the Committee on Medical Ethics.

The House of Delegates voted approval of the report.

Dr. Sheppard next called on Dr. Campbell for the final report from the Council.

DR. CAMPBELL: The Council convened at 8 a.m. for its scheduled meeting with the Blue Shield Board of Directors and received their favorable report on progress achieved during the past year.

. . . Council met with delegates from counties in the First Councilor District and a free expression of views on the problem involved in the matter of re-districting this district were exchanged. Council voted to continue the work of the present committee, with instructions to call representatives of each of the concerned counties to a meeting for further exploration of opinion and ideas as to a solution of the problem.

. . . Council voted approval of a request for $250 from the Committee on Maternal Health for completion of its study on maternal mortality, and another of $500 from the Committee on Hospitals and Medical Education for study of medical education.

. . . Council adjourned at 12:30 p.m.

The House of Delegates accepted the report of the Council.

Election of Officers

The next order of business was the election of Association Officers. Upon recommendation of the Nominating Committee, the House elected the following:

President-Elect—O. J. Campbell, M.D., Minneapolis

First Vice President—Justus Ohage, M.D., St. Paul

Second Vice President—C. E. Merkert, M.D., Minneapolis

Secretary—B. B. Souster, M.D., St. Paul

Treasurer—W. H. Condit, M.D., Minneapolis

Speaker, House of Delegates—C. G. Sheppard, M.D., Hutchinson

Vice Speaker, House of Delegates—H. M. Carryer, M.D., Rochester

Councilor, Third District—L. G. Smith, M.D., Montevideo

Councilor, Fifth District—L. R. Critchfield, M.D., St. Paul

Councilor, Sixth District—H. B. Sweetser, Jr., M.D., Minneapolis

Councilor, Seventh District—W. W. Will, M.D., Bertha

Dr. J. A. Bargen, Rochester, was re-elected a member of the House of Delegates of the American Medical Association; Dr. Paul C. Leck, Austin, was elected as Dr. Bargen's alternate delegate to the House of Delegates of the American Medical Association.

Meeting Place, 1953 Convention

In its final order of business, the House of Delegates accepted the invitation of the Ramsey County Medical Society to hold the 1953 annual meeting, the centennial celebration, in the city of St. Paul.

The House of Delegates of the Ninety-ninth Annual Meeting of the Minnesota State Medical Association adjourned at 2:30 p.m.

CONSTITUTIONAL CHANGES

(Editor's Note: In accordance with the Constitution of the Minnesota State Medical Association, any proposed amendments to the Constitution must be published in the official Journal of the Association not less than three months before the meeting at which final action is to be taken. The following constitutional changes were tentatively approved at the Ninety-Ninth annual meeting of the Association's House of Delegates, May 26, 27 and 28 in Minneapolis. The proposed changes appear in italics. They bring the Constitution up to date and in conformity with that of the American Medical Association.)

CONSTITUTION

Article I—Name of the Association

The name of this organization is the MINNESOTA STATE MEDICAL ASSOCIATION which may hereinafter be referred to as the Association.

Article II—Purposes of the Association

The purposes of this Association are to bring into one compact organization the entire medical profession of the State of Minnesota and to unite with similar societies of other states to form the American Medical Association; to promote the science and art of medicine; to elevate the standard of medical education; and to promote public health.

Article III—Location

The headquarters of the MINNESOTA STATE MEDICAL ASSOCIATION, incorporated under the laws of Minnesota, is located in the City of St. Paul, County of Ramsey and State of Minnesota.

Article IV—Component Societies and Councilor Districts

Section 1. The membership of this Association shall be organized into county and district medical societies. The functions of each such society and its relation to the Association shall be defined in a charter issued to it by the Association. Every charter so issued shall be subject to amendment and to revocation by the Association in such manner as may be prescribed in the By-Laws of the Association.

Sec. 2. A component county society is an aggregation of members of this Association living in one county.

Sec. 3. A component district society is an aggregation of members of this Association living in such districts as to make the organization of individual county societies inadvisable, or an amalgamation of two or more county societies.

Sec. 4. The Council, with the approval of the House of Delegates, shall designate the number of councilors and shall arrange the component societies into councilor districts.

Article V—Membership Classifications

This Association shall consist of active, life, service, affiliate, residency, honorary and associate members, as specified in the By-Laws.

Article VI—House of Delegates

The House of Delegates shall be the governing body of the Association, and shall consist of the delegates elected by the component societies to represent them. The following shall have the privileges of the floor, but without the right to vote; the President, the President-Elect, the Councilors, the Secretary, the Treasurer, the Past Presidents, and the Delegates to the American Medical Association.

Article VII—Council

The Council shall be the executive body of the Association. The Council shall have the full authority and power of the House of Delegates between Annual Sessions, unless the House of Delegates shall be called into special session as provided for in the By-Laws. The Council shall consist of the Councilors and ex officio but without the right to vote, the President, the First Vice-President, the President-Elect, the immediate Past President, the Secretary, the Treasurer, the Speaker of the House of Delegates, and the elected delegates to the American Medical Association. A majority of the Councilors shall constitute a quorum.

Article VIII—Annual Sessions and Meetings

Section 1. This Association shall hold an Annual Session, during which there shall be held General Meetings, which shall be open to all registered members and guests.

Sec. 2. The general time and place for holding each Annual Session shall be fixed by the House of Delegates, except that the exact date of the Session may be fixed by the Council.

Sec. 3. Special Meetings of either the Association or the House of Delegates may be called by the President on a two-thirds vote of the Council or upon petition by twenty delegates representing at least ten component societies.

Sec. 4. All Meetings of the Council shall be called by the Chairman of the Council or upon petition by three Councilors.

Article IX—Officers

Section 1. The officers of this Association shall be a President, a President-Elect, two Vice-Presidents, a Secretary, a Treasurer, a Speaker and Vice-Speaker of the House of Delegates, and a Councilor for each Councilor District. These officers shall be elected by the House of Delegates as hereinafter provided in the By-Laws.

Sec. 2. There shall be elected at the Annual Session one who shall be known as President-Elect until the beginning of the next calendar year which is also the fiscal year of the Association, at which time he automatically becomes president, to serve as such for one year.

Sec. 3. The other officers, except the Councilors, shall be elected annually. The terms of the Councilors shall be for three years. As nearly as possible, one-third of the members of the Council shall be elected each year.

Sec. 4. The Delegates and Alternate Delegates to represent this Association at the House of Delegates of the American Medical Association shall be elected in accordance with the Constitution and By-Laws of the American Medical Association.

Sec. 5. Terms of office of the officers and committeemen, unless otherwise provided, shall be for a term of one year from January first following the date of their election.

Sec. 6. In case of vacancy in an office, unless otherwise provided for in this Constitution or By Laws, the Council shall have the power to appoint temporarily a successor, until the House of Delegates shall meet and elect one, or until the next Annual Session.

Article X—Funds and Expenses

The Annual Dues shall be determined by the House of Delegates by a two-thirds vote of the delegates present. Funds may also be raised from the Association's publications, by voluntary contributions, and in other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray expenses of the Association, for scientific and educational publications, and for such other purposes as will promote the advancement of medicine. All resolutions appropriating funds must be approved by the Council before action is taken thereon.

Article XI—The Seal

The Association shall have a common seal, and the House of Delegates shall have the power to break, change or renew the same.

Article XII—Amendments

Section 1. The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been submitted to the membership in writing and published in the official Journal of the Association not less than three months before the meeting at which final action is to be taken.

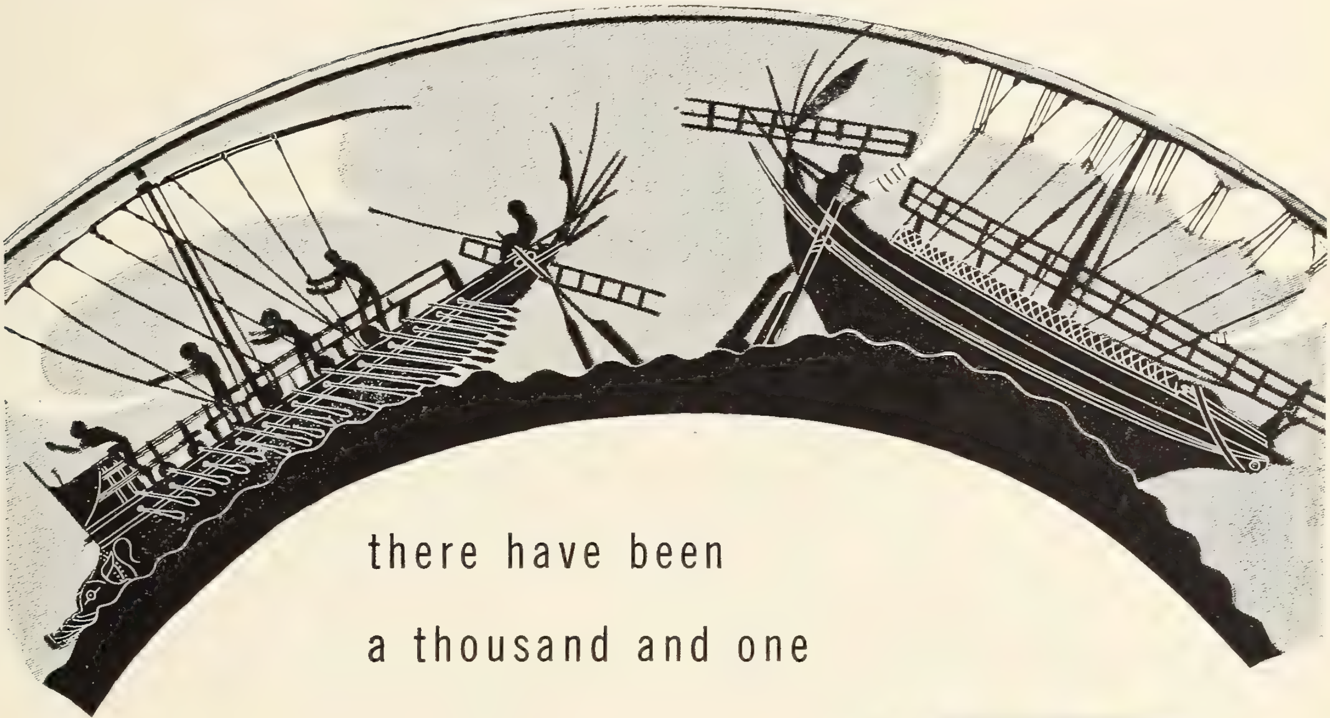
Sec. 2. The House of Delegates, at any Annual Session, may instruct the Council to make any changes in the Articles of Incorporation in accordance with the law, which may appear desirable or which may be made necessary by any change or amendment to the Constitution and By-Laws of the Association.

Sec. 3. Upon adoption of this Constitution all previous Constitutions are thereby repealed.

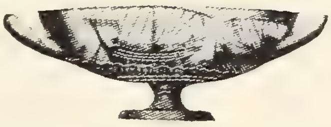
Article XIII—By-Laws

The authority for passing By-Laws to the Constitution of the Association shall be vested in the House of Delegates.

Ever since man went down
to the sea in ships



there have been
a thousand and one
suggestions for
the relief of
motion sickness.



War ship and merchant ship, about 500 B. C.; from painted vase found at Vulci in Etruria, now in the British Museum.

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In Memoriam

CHRISTOPHER GRAHAM

Dr. Christopher Graham, the last survivor of the original Mayo Clinic group, died June 20, 1952, at the age of ninety-six.

Born in New York state but in infancy brought to Olmstead County, Minnesota, Dr. Graham graduated from the University of Minnesota in 1887, where he played on the first University football team. Before he was graduated from the University he had taught in rural schools. For a period of two years after graduation he taught at Shattuck, where he coached athletic teams.

In 1892 he graduated from the Veterinarian School at the University of Pennsylvania and returned to teach veterinary science in the school of agriculture at the University of Minnesota. He took the M.D. degree at the University of Pennsylvania in 1894. He was the first intern at Saint Mary's hospital in Rochester.

Joining the group of Doctors Mayo and Stinchfield in 1894, he seems to have formally entered the group as a partner in 1895. For some years his main interest was obstetrics but, by 1914, he became head of the division of medicine at the Mayo Clinic. He was professor of medicine at the Mayo Foundation from 1915 to 1919.

In 1919 Dr. Graham retired from the practice of medicine to devote himself to the breeding of Holstein cattle in particular and livestock in general.

Mrs. Graham, the former E. Blanche Brackenridge, survives the doctor at the age of eighty-nine. A son, Malcolm, and a daughter, Mrs. George M. Lowry, both of Rochester, also survive him.

PETER FREDERICK HOLM

Dr. Peter F. Holm, specialist in eye, ear, nose and throat at Wells, Minnesota, for thirty-five years, died at Sarasota, Florida, June 25, 1952, at the age of seventy-nine.

Dr. Holm was born in Denmark, November 26, 1872, and at the age of twelve came to this country, where his parents settled at Waverly, South Dakota. He attended schools at Watertown, South Dakota, and in 1898 obtained his M.D. degree from the Bellevue Hospital Medical College in New York. He graduated fourth in his class and received a faculty award of $100. After interning at the Hackensack General Hospital in Hackensack, New Jersey, he came to Wells in 1899. Postgraduate work in the special senses was taken in Chicago and New Orleans.

Dr. Holm served as coroner for many years and was a past-president of the Blue Earth Valley Medical Society. At one time he was vice president of the Southern Minnesota Medical Association.

Dr. Holm is survived by his wife, the former Bertha E. Kohlhase; one daughter, Maryon Holm Angelillo, and one son, Roger G., all of Sarasota and vicinity.

Dr. Holm sold his practice in 1933 and travelled extensively in recent years. He suffered from pernicious anemia for over twenty years before his death.

OSCAR V. JOHNSON

Dr. Oscar V. Johnson, a practitioner in Minnesota for thirty-eight years, died at his home in Springfield, Ohio, July 24, 1952 at the age of seventy-four.

Dr. Johnson was born at Carver, Minnesota, May 29, 1878. He attended North High School in Minneapolis and obtained his M.D. degree from the University of Minnesota in 1905. He interned at Swedish Hospital in Minneapolis and practiced in Sebeka, Minnesota, from 1905 to 1927. He then located in Fergus Falls. where he practiced seventeen years. He took postgraduate study in New York in 1908, in London in 1913, and in Chicago in 1928. In 1944 he moved to Benton, Michigan, where he practiced until he moved to Springfield, Ohio, in 1949.

Dr. Johnson specialized in eye, ear, nose and throat diseases and was a member of the Park Region Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a member of the Library Board of Fergus Falls and the Staff of St. Luke's Hospital. He was also a member of the Wadena A.F. & A.M. Lodge No. 156 and of the Scottish Rite and Zuhrah Temple, both of Minneapolis.

Dr. Johnson is survived by his wife and one daughter, Mrs. Daniel Drake of Springfield, Ohio.

WILLIAM B. TORGERSON

Dr. William B. Torgerson, a practitioner in Oklee, Minnesota, since 1912, died July 6, 1952 at the age of eighty. He had been afflicted with Parkinson's disease since 1941 and had been forced to curtail his practice until his retirement in 1949.

Dr. Torgerson was born in Lake Mills, Iowa, October 27, 1872. He attended Luther College in Decorah, Iowa, and obtained his medical degree from the University of Minnesota in 1897. After taking postgraduate work at New York Polyclinic and Chicago Postgraduate School, he began practice at Cannon Falls in 1898. He practiced in Clarkfield from 1898 to 1907 and at Greenbush from 1909 to 1912.

He was a member of the Red River Valley Medical Society, a component society of the Minnesota State Medical Association and the American Medical Association. A leader in community activities, he long served as a member and treasurer of the local school board. He also served as village treasurer, was one of the founders of the Commercial Club and was for a long time a member of the board of directors and secretary of the Oklee Co-operative Creamery Association. He was a member of Zion Evangelical Lutheran Church and was long a member of the church choir and director of the Sunday School.

Dr. Torgerson was married to Ingeborg Ohnstad in 1900. He is survived by his wife and five children: Mrs. R. E. Bilbrough of Kansas City, Erling of Thief

(Continued on Page 808)

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting September 8, October 20.
Surgical Anatomy and Clinical Surgery, two weeks, starting September 22, November 3.
Surgery of Colon and Rectum, one week, starting September 15.
Gallbladder Surgery, ten hours, starting October 20.
Basic Principles in General Surgery, two weeks, starting September 8.
General Surgery, one week, starting October 6.
General Surgery, two weeks, starting October 6.
Breast and Thyroid Surgery, one week, starting October 6.
Esophageal Surgery, one week, starting October 13.
Thoracic Surgery, one week, starting October 20.
Fractures and Traumatic Surgery, two weeks, starting October 6.
GYNECOLOGY—Intensive Course, two weeks, starting September 8, October 20.
Vaginal Approach to Pelvic Surgery, one week, starting September 22, November 3.
OBSTETRICS—Intensive Course, two weeks, starting September 29, November 3.
MEDICINE—Electrocardiography and Heart Disease, two weeks, starting September 29.
Intensive General Course, two weeks, starting October 13.
Gastroscopy and Gastroenterology, two weeks, starting September 15, November 3.
UROLOGY—Intensive Course, two weeks, starting September 8.
Cystoscopy, ten days, starting every two weeks.
DERMATOLOGY—Intensive Course, two weeks, starting October 13.

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Communication

June 24, 1952

To the Editor:

I should like to take this means of expressing my thanks to the many physicians throughout the state who responded to the recent questionnaire concerning the continuation medical education program. As a result of this inquiry, much important information was secured and many exceedingly helpful suggestions and criticisms were offered.

Our continuing aim will be to present practical material and information concerning important advances in the various fields of medicine. Suggestions concerning subjects for courses or any other aspect of the continuation medical education program are always welcome.

Sincerely yours,

ROBERT B. HOWARD, M.D., Director,
Department of Continuation Medical
Education, University of Minnesota
Medical School.

COMPENSABLE DISABILITY

(Continued from Page 743)

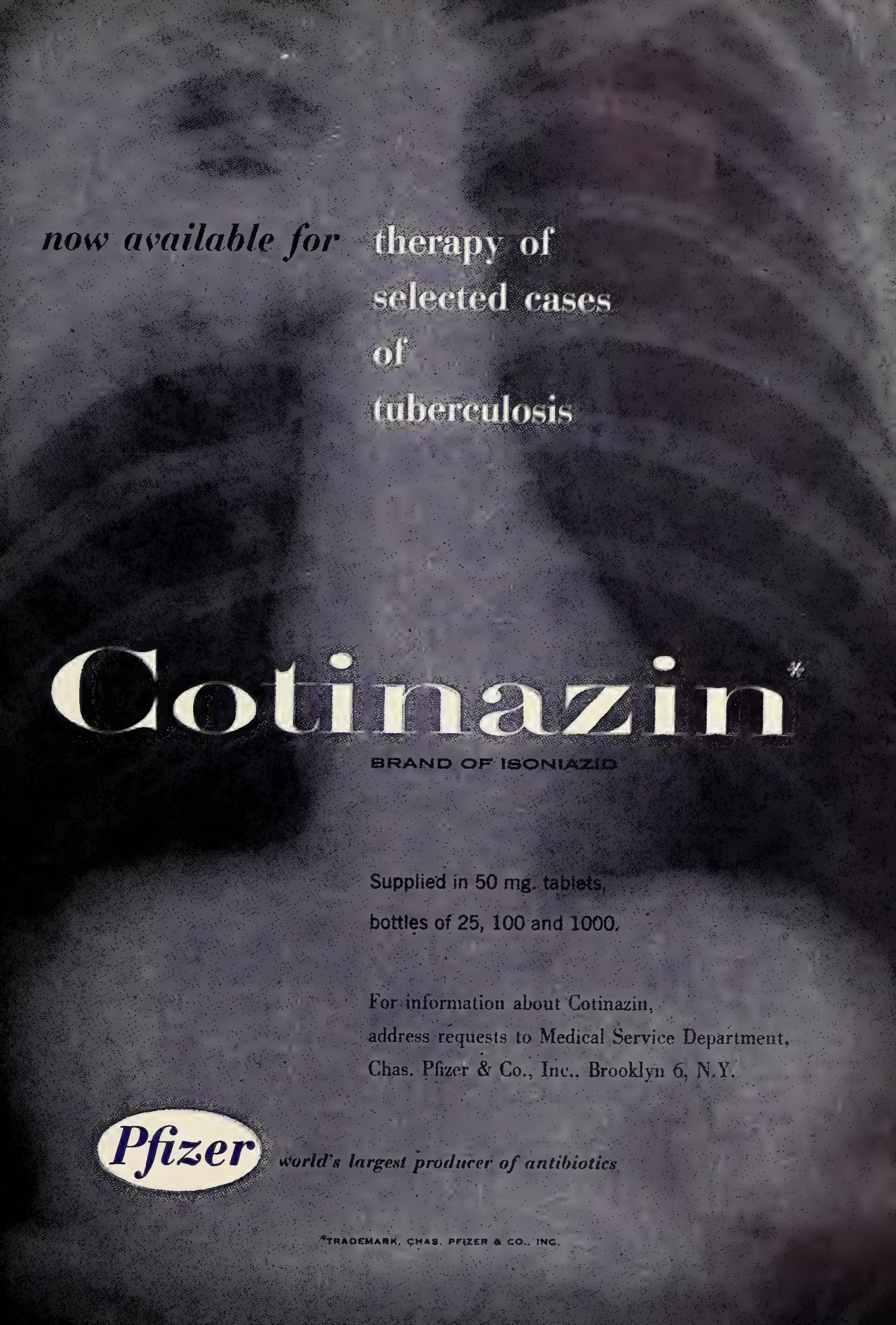
ability were evolved. These details have been explained elsewhere.**

The principle of calculating a disability by this method remains the same in all instances. When the useful range of motion in a joint is used as a criterion for establishing a disability, then most of the other factors which contribute to a disability have been given consideration in that the factors causing disability lie within the arc of disabled motion. To that extent the patient is asked to move the disabled joint only through its useful range of motion. Forced motions, painful motions, or other disabled motions which might extend beyond the useful range are not measured, and to that extent the disabled motions have been given consideration.

A certain amount of liberty may be taken with these figures, depending upon the judgment of the surgeon. When the calculations have been made, the final figure is usually placed at the closest unit of five.

This method of calculating disability is not designed to eliminate a surgeon's judgment; it is intended to aid him.

**Permission obtained from Charles C Thomas, Publisher, to reproduce these illustrations from Rice, Carl O.: The Calculation of Disabilities of the Extremities. Published in 1952.



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Reports and Announcements

INTERNATIONAL COLLEGE OF SURGEONS

The United States and Canadian Chapters of the International College of Surgeons will hold their Seventeenth Annual Assembly in Chicago at the Conrad Hilton Hotel on September 2, 3, 4, and 5, 1952. An excellent clinical program has been arranged which will present a comprehensive review of the latest concepts in surgery by world-renowned teachers. One hundred and sixty scientific and technical exhibits will be featured.

The convocation address will be given by the Right Honorable Lord Horder, G.C.V.O., M.D., B.Sc., F.R.C.P., London, who will talk on "Freedom in Medicine."

Dr. Horder is extra physician to the Queen of England, consulting physician to St. Bartholomew's Hospital; Honorary Adviser to Ministries of Food, Labor and Pensions, chairman of the British Empire Cancer Campaign, chairman of the Empire Rheumatism Council, and chairman of Fellowship for Freedom in Medicine.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The American College of Chest Physicians held their annual meeting at the Congress Hotel in Chicago on June 5-8, 1952.

Dr. Chevalier Jackson, Philadelphia, was awarded the College Medal for meritorious achievement in the specialty of diseases of the chest. An essay award was also presented to Dr. C. Walton Lillehei, of the Department of Surgery of the University of Minnesota Medical School, for an essay on "Experimental Bacterial Endocarditis and Proliferative Glomerulonephritis." The award included a cash prize of $250.00.

The officers elected for 1952-53 were: president, Andrew L. Banyai, Milwaukee, and president-elect, Alvin E. Green, Houston. Dr. John F. Briggs, St. Paul, is a member of the Board of Regents and Dr. Herman J. Moersch, Rochester, is a member of the Board of Governors.

The next annual meeting will be held in New York City at the Hotel New Yorker on May 28-31, 1953.

AMERICAN DERMATOLOGICAL ASSOCIATION PRIZE ESSAY CONTEST

The American Dermatological Association is again offering a prize of three hundred dollars for the best essay submitted for original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. The purpose of this contest is to stimulate investigators to original work in these fields.

Manuscrips typed in English with double spacing and ample margins as for publication, together with illustrations, charts, and tables, all of which must be in *triplicate,* are to be submitted not later than January 1, 1953. The manuscripts should be sent to Dr. Louis A. Brunsting, Secretary, American Dermatological Association, 102-110 Second Avenue, Southwest, Rochester, Miinesota. Those which are incomplete in any of the above respects will not be considered.

Competition in this prize contest is open to scientists generally, not necessarily to physicians.

The award will be made by a committee of judges selected to pass on the essays by the Research Aid Committee of the American Dermatological Association and the decision of the judges shall be final. The essays are judged on the following considerations: (1) originality of ideas; (2) potential importance of the work; (3) experimental methods and use of controls; (4) evaluation of results; (5) clarity of presentation. This contest is planned as an annual one, but if in any year, at the discretion of the Committee and judges, no paper worthy of a prize is offered, the award may be omitted.

The prize-winning candidate may be invited to present his paper before the annual meeting of the American Dermatological Association with expenses paid in addition to the three hundred dollar prize. Further information regarding this essay contest may be obtained by writing to the Secretary of the American Dermatological Association.

The next annual meeting of the American Dermatological Association will be held June 9-13, 1953, at The Lake Placid Club, Essex County, New York.

PSYCHIATRIC RESIDENT PROGRAM

The California Department of Mental Hygiene is offering a five-year psychiatric resident program for physicians wishing to qualify for the certificate of the American Board of Psychiatry and Neurology. The first, third and fourth years will be devoted to regular psychiatric residency training. The second and fifth years, the resident serves as a staff psychiatrist at a California State hospital or clinic. The salary starts at $436 a month, with yearly increases that bring it to $530 a month for the fifth year.

Inquiries may be sent to the California State Personnel Board, 1015 L Street, Sacramento, California.

VAN METER PRIZE AWARD

The American Goiter Association is again offering the Van Meter Prize Award of $300.00 and two honorable mentions for the best essays submitted on original work in problems related to the thyroid gland.

These essays may cover either clinical or research investigations and should not be longer than 3,000

(Continued on Page 788)

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VAN METER PRIZE AWARD

(Continued from Page 786)

words. They must be written in English and typed, double spaced copy in duplicate should be sent to Corresponding Secretary Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, not later than February 15, 1953.

The judging committee is composed of men particularly qualified to analyze the merits of the essays submitted.

In the event that essays of sufficient merit are entered in the competition, the award will be presented at the annual meeting of the Goiter Association to be held in Chicago on May 7, 8, 9, 1953, and a place will be reserved on the program for the author, if it is possible for him to attend. The essay will also be published in the Proceedings of the Association.

FISK FUND PRIZE DISSERTATION

"The Present Status of Anti-Coagulent Therapy" is the subject announced by the trustees of the Caleb Fisk Fund of Rhode Island Medical Society for their 1952 prize dissertation.

An award of $200 will be presented to the author of the best dissertation submitted. Entries must be received by December 1, 1952, with a motto thereon, and a sealed envelope included with the same motto inscribed on the outside and the name and address of the author inside. The successful contestant will also agree to read his paper before the Rhode Island Medical Society at its annual meeting on May 7, 1953. Copy must be typed, doubled spaced and should not exceed 10,000 words.

For further information write to the Rhode Island Medical Society, 106 Francis Street, Providence 3, R. I.

BIOLOGICAL PHOTOGRAPHIC ASSOCIATION

The Upper Midwest Chapter of the Biological Photographic Association decided to hold one "open" meeting and to extend an invitation to persons of this area who have a sincere interest in scientific photography.

The meeting will be held September 27 and 28 in Room 111, Owre Hall, on the Main Campus of the University of Minnesota, starting at 1:00 P.M. on Saturday, September 27. The wives of men attending are cordially invited to attend the meeting or the banquet or both.

The Saturday afternoon session will consist of a tour of the Sound Stage of the Audio Visual Shop of the University and will be followed by lectures and demonstrations covering these subjects—

1. Cinephotomicrography of the circulatory system in a bat's wing.

2. Autoradiography—a new technic using both gamma and beta radiation.

(Continued on Page 790)

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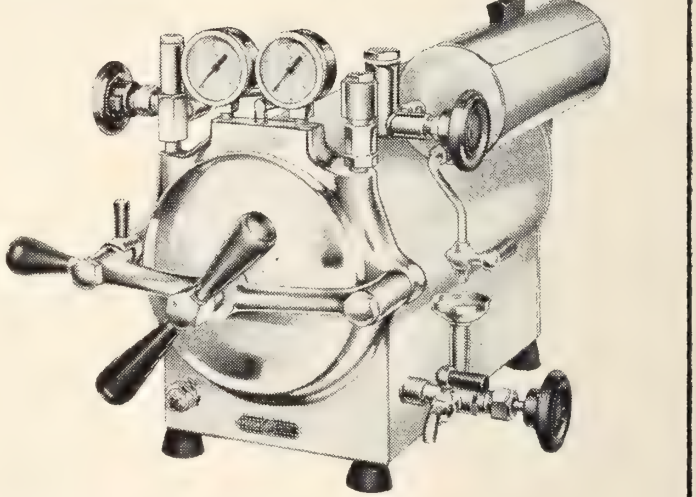

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COBALT	0.006 mg.	CHOLINE	200 mg.
*COPPER	0.7 mg.	FOLIC ACID	0.05 mg.
FLUORINE	3.0 mg.	*NIACIN	6.7 mg.
*IODINE	0.7 mg.	PANTOTHENIC ACID	3.0 mg.
*IRON	12 mg.	PYRIDOXINE	0.6 mg.
MAGNESIUM	120 mg.	*RIBOFLAVIN	2.0 mg.
MANGANESE	0.4 mg.	*THIAMINE	1.2 mg.
*PHOSPHORUS	940 mg.	*VITAMIN A	3200 I.U.
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ZINC	2.6 mg.		

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*Nutrients for which daily dietary allowances are recommended by the National Research Council.

BIOLOGICAL PHOTOGRAPHIC ASSOCIATION

(Continued from Page 788)

3. Stereo-photomicrography in color for plant pathology.

4. Use of the Dye Transfer Process in medical photography.

Time will be allowed for answers to questions from the audience.

The Saturday evening session will consist of the banquet, a brief business meeting of the Chapter and reports of the delegates to the national conventions of the Biological Photographic Association and the Photographic Society of America. Discussion will be held at this time concerning the advisability of holding one-day seminars on specific photographic processes during the year.

An Open House will be held starting Sunday morning in the Dental and Medical photographic laboratories of the University.

For reservations write to J. H. Rothenberger, School of Dentistry, University of Minnesota, Minneapolis 14.

DEDICATION OF MEDICAL SCIENCES BUILDING AT MAYO CLINIC AND MAYO FOUNDATION

A new addition to the Medical Sciences Building of the Mayo Clinic and Mayo Foundation at Rochester, Minnesota, will be dedicated on September 26 by Dr. Vannevar Bush, president of the Carnegie Institution of Washington, D. C., director of the Office of Scientific Research and Development from 1941 to 1946, and prominent in research endeavors in various fields of science in the United States. Dr. James Lewis Morrill, president of the University of Minnesota; Dr. Victor Johnson, director of the Mayo Foundation for Medical Education and Research; and Dr. Theodore C. Blegen, dean of the Graduate Cchool, University of Minnesota, are expected to take part in the dedication exercises.

On the same day Frank C. Mann Hall in the Medical Sciences Building will be dedicated. It is named for Dr. Frank C. Mann, who was for many years director of the Mayo Foundation Institute of Experimental Medicine and professor of experimental surgery in the Mayo Foundation, Graduate School, University of Minnesota. Speakers at this occasion will be Dr. Owen H. Wangensteen, professor and chairman of the Department of Surgery in the University of Minnesota Medical School at Minneapolis; Dr. Lester R. Dragstedt, Thomas D. Jones, Distinguished Service Professor and chairman of the Department of Surgery, University of Chicago; and Dr. Chester Morse Jones, clinical professor of medicine in the Harvard University Medical School.

The addition to the Medical Sciences Building was begun in April, 1949. It is a five-and-a-half story building 130 by 152 feet, and enlarges the capacity of the Medical Sciences Building to a total of 140,000 square feet of floor space which can be devoted to useful purposes. The completed construction brings together in a single modern, conveniently located structure, the laboratory facilities for medical education and research; and provides these fundamental fields of medi-

(Continued on Page 792)

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DEDICATION OF MEDICAL SERVICES BUILDING

(Continued from Page 790)

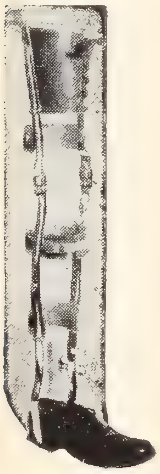
cine an opportunity for closer collaboration not only with one another but with the various clinical and surgical fields.

AMERICAN COLLEGE OF SURGEONS

The Forum on Fundamental Surgical Problems, one of the most important features of the 38th Clinical Congress of the American College of Surgeons to be held at the Waldorf-Astoria, New York City, September 22 through 26, will again be a focus of national attention because of its consistent record of encouraging new ideas leading to advances in surgery. Each year the Forum hears papers by younger men whose independent and original research adds to existing knowledge in the field. The Forum will begin Monday and continue through Friday, with fifteen sessions in all. Dr. Owen H. Wagensteen, Professor of Surgery, University of Minnesota Medical School, is chairman of the Surgical Forum Committee.

MINNESOTA PUBLIC HEALTH CONFERENCE

Problems of old age and rehabilitation will be featured at the Minnesota Public Health Conference this year. The conference will meet October 2 and 3 at the St. Paul Hotel, St. Paul, and is open to anyone interested in public health. Minnesota physicians who will participate in talks and panels include Dr. E. L. Tuohy, Duluth; Dr. Franklin Top, professor in the School of Public Health, University of Minnesota; Dr. James P. O'Keefe, St. Cloud; Dr. Robert N. Barr and Dr. D. S. Fleming, Minnesota Department of Health; Dr. Russell H. Frost, superintendent of Glen Lake Sanatorium; Dr. Walter P. Gardner, St. Paul; Dr. Mary E. Giffin, Dr. V. O. Wilson and Dr. Charles Scheard, Rochester; Dr. S. A. Whitson, Albert Lea; Dr. E. A. Kilbride, Worthington; Dr. E. C. Bayley, Lake City; Dr. H. A. Roust, Montevideo; and Dr. G. S. Boyer, Crookston. Dr. D. R. Gillespie, past president of the St. Paul Health Council, will be toastmaster at the annual banquet on Thursday evening, October 2.



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CONTINUATION COURSES

Tuberculosis for Lay Persons.—The University of Minnesota in conjunction with the Minnesota Public Health Association will present a continuation course in Tuberculosis for Lay Persons particularly interested in this field. The course will be held at the Center for Continuation Study on the University of Minnesota campus from October 27 to 29, and emphasis will be placed on the public health aspect of tuberculosis.

Chest Diseases.—A continuation course in Treatment of Diseases of the Chest will be presented by the University of Minnesota in conjunction with the American College of Chest Physicians and the Minnesota Chapter of the American Trudeau Society on October 16-18, 1952, at the Center for Continuation Study.

Intended primarily for physicians engaged in general practice, emphasis will be placed on the treatment of the various types of pulmonary disease. Guest participants include two outstanding authorities in this field: Dr. Arthur J. Vorwald, director of the Trudeau Foundation and the Saranac Laboratory, Saranac Lake, New York, and Dr. Paul A. Bunn, professor, Department of Medicine, State University of New York, Syracuse. Dr. Vorwald will also address the American Trudeau Society on Friday evening, October 17, when he will discuss "The Effects of BCG Vaccination in Silicotic Animals."

The remainder of the faculty for the course will consist of members of the clinical and full-time staff of the University of Minnesota Medical School and the Mayo Foundation.

Clinical Chemistry.—The University of Minnesota will present a course in Clinical Chemistry for Medical Technologists on October 7 and 8, 1952, at the Center for Continuation Study. Presented under the direction of Dr. Gerald T. Evans, director of hospital laboratories, the program will emphasize methods for the determination of electrolytes and the clinical application of these methods. The use of radioactive isotopes in medicine will also be discussed.

The faculty will include members of the staff of the University of Minnesota Medical School.

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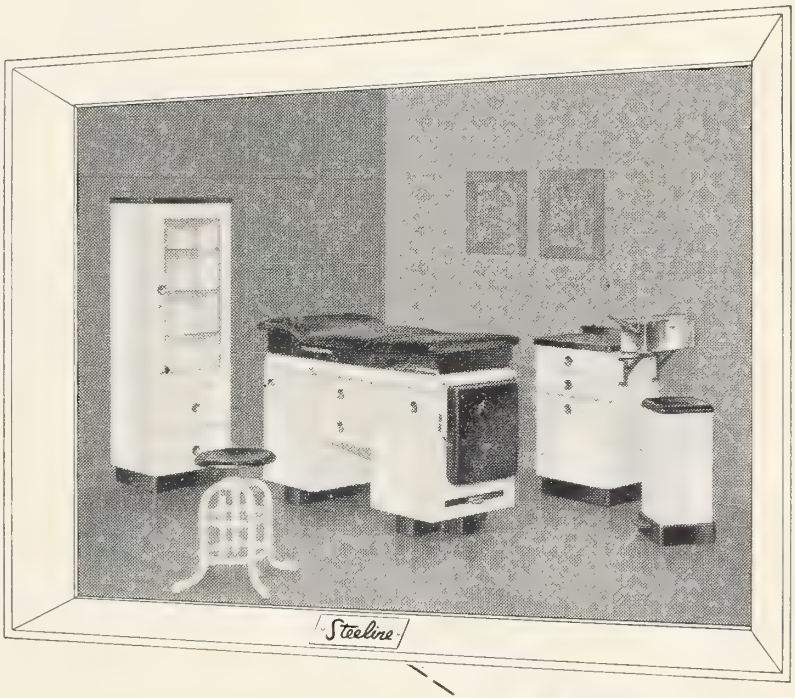

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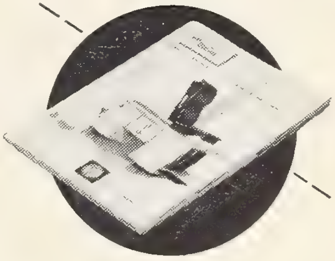

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Of General Interest

Dr. James Rogers Fox, of the University of Minnesota Medical School and the Health Service, has returned from Europe after several months. While he was in Europe, he made his headquarters in Scotland where he was a member of the faculty of Internal Medicine at the University of Edinburgh. In addition, Doctor Fox participated in the postgraduate course in Internal Medicine at Edinburgh; addressed a meeting of members of the British and Irish Medical Associations in Dublin; and was the guest speaker of the annual meeting of the British Health Officers which was held in Nottingham.

He had the opportunity of observing methods employed in leading medical schools, health services, hospitals, and industrial medical centers throughout the British Isles and on the European mainland. However, the unique feature was that Doctor Fox was made a member of the British Medical Council Registry and as such participated in the National Health Service. This gave him first-hand experience in socialized medicine which he intends to discuss when he resumes his weekly radio health talks.

* * *

Dr. Louis A. Buie, professor of surgery in the Mayo Foundation, was presented with the 1952 Alumni Honor Award and Gold Key by the Medical Alumni Association of the University of Maryland "for outstanding contributions to medicine and distinguished service to mankind." The presentation was made June 5, when Dr. Buie addressed the association on "The Fruit of Loyal Nature and of Noble Mind."

* * *

Dr. James L. Jaeck, University of Minnesota '37, recently completed his residency in Pathology under Dr. E. T. Bell at the Veterans Administration Hospital in Minneapolis. Dr. and Mrs. Jaeck (Evangeline Langhoff, Minnesota '40), and their three children will reside in La Crosse, Wisconsin, where the doctor has accepted an appointment as Pathologist and Director of Laboratories of the Gundersen Clinic and La Crosse Lutheran Hospital. Dr. Jaeck was in general practice in Minneapolis for several years and served in World War II as a Lt. Commander in the U. S. Naval Reserve.

* * *

Following his discharge from service in the U. S. Navy, **Dr. F. H. Koenecke,** formerly of Ceylon began general practice at Lakefield on July 1, where he is associated with **Dr. Victor W. Doman.**

* * *

Dr. Walter R. Ramsey, St. Paul, has contributed a chapter to the *Encyclopedia Arctica,* which is to be published in the near future. Entitled "Pembina and Pemmican," it tells about the ox carts that plied between St. Paul and Pembina up on the Canadian border prior to motorized travel. Pemmican, of course, is the dried buffalo meat that was a common source of sustenance for travelers in unsettled areas in pioneer days.

* * *

Announcement has been made of the affiliation of **Drs. Charles E. Rea** and **Frederick M. Owens** in the practice of surgery, with offices at 962 Lowry Medical Arts Building, St. Paul.

* * *

Dr. Martin E. Janssen, a diplomate of the American Board of Internal Medicine is now associated with **Dr. Joseph N. Gehlen** and **Dr. Frank J. Milnar** in the practice of internal medicine. Their offices are at 714 Lowry Medical Arts Building, St. Paul.

* * *

The American Board of Internal Medicine has certified **Dr. J. Gordon Beaton,** who is a member of the Fritsche Clinic in New Ulm.

* * *

The Commission on Chronic Illness, located for the past two years in Chicago, where it has been occupying office space donated by the AMA, moved to Baltimore on July 1, 1952. In Baltimore the Commission will be housed in offices provided through the generosity of Johns Hopkins University School of Hygiene and Public Health.

The AMA is one of four organizations that founded the Commission in 1919 and it has, and will continue to, contribute substantial financial support for its program. **Dr. Dean W. Roberts** has been appointed director of the Commission, and **Peter G. Meek,** who has been serving as acting director, has assumed the duties of assistant director. **Dean E. Krueger** will continue as program analyst.

* * *

Dr. Lyle Benson, recently released from military service after 14 months with the Viking Division at Camp Rucker, Alabama, has resumed his practice at Tracy. At the time of his separation from the Army in May, Dr. Benson was commanding officer of the Twentieth Clearing Company, Tracy Guard unit. Previously he had been division sanitary officer.

* * *

The AMA House of Delegates officially abolished fellowship in the Association at the June session in Chicago. Provision has been made for service, affiliate and honorary fellowships to be incorporated in the membership classification. All candidates for membership in the Association will be screened by the Judicial Council prior to acceptance.

* * *

Announcement has been made of the election of **Dr. Northrup Beach,** Minneapolis, as a fellow of the American Academy of Pediatrics.

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Dr. John O'Leary, who has been affiliated with the **Dr. Otto Seifert Clinic** at New Ulm, has terminated his practice there to resume his medical studies at the University of Minnesota.

Dr. O'Leary is taking a three years' course in internal medicine and will alternate between the university and the Veterans Hospital at Fort Snelling.

* * *

Effective in July, **Dr. James Doyle** became associated in a partnership with **Dr. H. A. Wente** at Rochester.

A graduate of the University of Minnesota, Dr. Doyle is a native of Owatonna. Following the completion of his university course in 1949, he joined the Army Medical Corps and has been in service for the past three years. With the rank of captain, his last assignment was as commandant of the 33rd Station Hospital at Bordeaux, France.

Dr. Wente, who began his practice at New Ulm three years ago, was a classmate of his new partner at St. Thomas College and the University of Minnesota.

* * *

In complement to his forty years of service on the faculty of the University of Minnesota Medical School, **Dr. Moses Barron** was guest of honor at a dinner given by fellow faculty members on June 28.

Dr. Barron retired as professor emeritus of medi-

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cine on July 1, but he is continuing private practice. He joined the school in 1912 as a demonstrator in pathology and bacteriology and was made an instructor the following year. In 1917 he was appointed an assistant professor and a full professor in 1933.

* * *

Dr. Milton Plucker has opened offices for general practice at Storden. A native South Dakotan, Dr. Plucker recently completed his internship at Omaha, Nebraska.

* * *

Dr. and Mrs. Louis A. Brunsting, of Rochester, sailed on the *S. S. Mauretania* for Europe in June. Dr. Brunsting, who is a member of the dermatology section at the Mayo Clinic, presented a paper at the International Congress of Dermatology and Syphilology held in London in July.

Before returning home, Dr. and Mrs. Brunsting will visit in England, Scotland, Germany, Holland and Sweden.

* * *

Dr. Robert Molenaar has engaged in practice at Cannon Falls, where he is located in the offices formerly occupied by **Dr. George Bagby** in the Lukach Building.

A 1951 graduate of the University of Minnesota, Dr. Molenaar recently completed his internship at Ancker Hospital, St. Paul.

* * *

Announcement has been made of the appointment of **Dr. David Struxness** to the Alexandria Clinic, where he will be associated with **Drs. L. F. Wasson, C. E. Carlson, G. W. Clifford, P. M. Geiser** and **H. L. Stemsrud.**

Dr. Struxness is a native of North Dakota, but he grew up at Belgrade, Minnesota. Prior to entering the University of Minnesota, where he received B.S. and M.D. degrees, he had taken a Bachelor of Theology degree at Luther College. Since his completion of his medical course at the the university a year ago, he has been a member of the staff at the General Hospital in Minneapolis.

* * *

A permit for construction of a clinic building on East Broadway at Little Falls has been issued to **Dr. Glenn P. Schmitz.** A modern one-story brick building, it will be approximately 25 by 75 feet in area. Construction was started in July, but Dr. Schmitz does not expect it to be ready for occupancy until early next spring.

* * *

Although Gaylord is only 1,050 in population the community is assured of the best of medical care by a twenty-bed hospital which was opened this spring and a new clinic building recently completed by **Dr. D. C. Olson.**

Equipped with modern x-ray facilities, the clinic includes a laboratory, two examination rooms, with dressing rooms adjoining, a pediatrics room, a combination treatment-recovery room, offices and reception room.

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Dr. Paul F. Meyer, Faribault, has announced his affiliation with **Dr. Robert P. Meyer,** recently of Chicago, in the practice of medicine and surgery.

A graduate of the University of Minnesota School of Medicine, Dr. Robert Meyer also studied at Harvard University. His internship was served at the Presbyterian Hospital, Chicago, where he had four years of resident training in general surgery. He is a member of the American College of Surgeons, a candidate of the American Board of Surgery and was formerly on the faculty of the University of Illinois School of Medicine, Department of Surgery.

Dr. Meyer has done considerable research in both general and thoracic surgery and he was a member of the Chicago Thoracic Surgical Society and the Chicago Medical Society.

* * *

The American Board of Internal Medicine has announced certification of **Dr. John G. Rukavina,** of St. Paul.

Following his graduation from the University of Minnesota, Dr. Rukavina enlisted in the Army Medical Corps, where he held the rank of captain. On completion of his internship at St. Mary's Hospital, Duluth, he was appointed resident physician.

* * *

The summer quarterly bulletin of the **Mayo Clinic and Foundation** reports the appointment of seven new consultants at the Clinic. They are **Drs. Paul M. Brickley, Edward C. Clark, Henry W. Dodge, Jr., William T. Foulk, Ward S. Fowler, Richard A. Groat,** and **R. Drew Miller.**

Dr. Brickley received his medical degree in 1943 and was later in active service in the Army Medical Corps. In July, 1948, he was admitted as a fellow in opthalmology at the Mayo Foundation and received an M.S. degree in ophthalmology from the University in 1952.

Dr. Clark was graduated in medicine in 1943 and later served in the Army Medical Corps. He has been assistant professor of neurology at the University of Iowa College of Medicine since 1949.

Dr. Dodge received his M.D. degree in 1943 and shortly afterward was assigned to active duty in the Army Medical Corps. In 1948 he entered the Mayo Foundation as a fellow in neurosurgery and received an M.S. degree in June, 1951.

Dr. Foulk received his medical degree in 1942. He served in the Army Medical Corps and entered the Mayo Foundation on October 1, 1947, and received an M.S. degree in medicine from the University of Minnesota in 1950.

A 1941 graduate of the Harvard Medical School, Dr. Fowler was in active service in the Army. Since 1947 he has been a member of the staff of the department of physiology at the University of Pennsylvania Graduate School of Medicine.

Dr. Groat received a Ph.D. degree in 1941 and was anatomy instructor at Emory University in 1941 and 1942; at Oglethorpe University in 1943. From there he went to Northwestern University as an associate in neurology, and later assistant professor of neurology until 1946. He then was made assistant professor of histology and neuroanatomy and finally professor of anatomy and director of the department of anatomy at Bowman Gray School of Medicine, where he received his medical degree in 1952.

A veteran of the Navy Medical Corps, Dr. Miller received his medical degree in 1945. He entered the Mayo Foundation in October, 1948, and received an M.S. degree in December, 1951.

* * *

Announcement has been made by the Olmsted County Community Council—an organization for promotion of youth programs—of the election as president of **Dr. H. F. Helmholz,** of Rochester. Formerly head of pediatrics at the Mayo Clinic, Dr. Helmholz served as chairman of President Truman's White House Conference on Children and Youth in 1950.

* * *

Dr. J. L. Bader, who received his medical degree at the University of Nebraska in June, 1951, has joined the staff of the Slayton Clinic at Slayton. The other members are **Dr. R. F. Pierson** and **Dr. Dean D. Nywall.**

A Navy veteran of World War II, Dr. Bader spent two and a half years of four and a half years stretch in the Pacific Theater. He is a native of Nebraska City and his internship was served at the Clarkson Hospital in Omaha.

* * *

Roy T. Pearson, formerly on the staff of the Veterans' Hospital at Fort Snelling, has moved from Shakopee to Spokane, Washington, where he will be associated with the Veterans' Hospital.

* * *

The **Moorhead Clinic** has announced the addition of two more physicians to the staff. They are **Dr. Vernon Carlson,** of South St. Paul, and **Dr. E. W. Humphrey, Jr.,** son of **E. W. Humphrey,** of the Clinic.

Both general practitioners, they received their medical degrees from the University of Minnesota in 1952 and interned together at General Hospital, Minneapolis.

Dr. Carlson served as a lieutenant (jg) in the Navy for three years during World War II, with assignment in the Pacific Theater.

Also a veteran of World War II, Dr. Humphrey spent six months in the Counter Intelligence Corps, six months in the Infantry, and attended a Japanese language school for a year.

* * *

Dr. Wallace E. Anderson, of Minneapolis, where he was born and grew up, opened offices at Lakeville on July 1. A veteran of World War II, Dr. Anderson served for forty-one months as a weather meteorologist in the Air Force. He began his study of medicine at the University of Illinois, but transferred to the University of Minnesota, where he was graduated in June, 1951. His internship was served at Ancker Hospital, St. Paul.

Dr. Anderson is a member of the staffs of the Deaconess Hospital, Minneapolis and the Sanford Hospital at Farmington. At Lakeville he replaces **Dr. Kenneth E. Stein,** who has gone to Pierz to be associated in practice with his brother, **Dr. Raymond J. Stein.**

* * *

Dr. Milo Hanson, formerly of Glendive, Montana, has joined the Little Falls Clinic, where he will have charge of internal medicine patients. The other members of the staff are **Dr. George Heine,** obstetrician and pediatrician, and **Dr. G. M. A. Fortier,** surgeon.

Commissioned an ensign, Dr. Hanson served in the U. S. Navy from 1943 until the end of the war and was in active combat duty in the Pacific Theater. After his separation from service, he entered the University of Minnesota and was graduated. He interned at Ancker Hospital, St. Paul.

* * *

In recognition of his outstanding service to the Church, society, and the Holy See, **Dr. Francis J. Schatz,** of St. Cloud, has been made a member of the Order of St. Gregory the Great by Pope Pius XII. Carrying the rank of knighthood, this is the highest honor conferred by the Vatican on laymen.

A native of Montgomery, Minnesota, Dr. Schatz attended St. Thomas College, St. Paul, from 1900 to 1905. In 1905 and 1906 he was at Creighton University, Omaha, Nebraska, and received his medical

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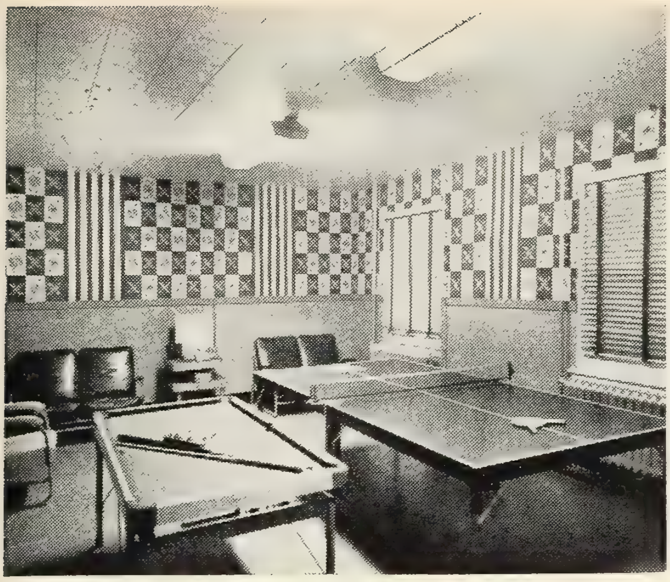

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degree from Jefferson Medical School in Philadelphia in 1909.

He began his practice at Turtle Lake, Wisconsin, in 1910; moved to Rosemount, Minnesota, in 1912 and was in practice there until 1920, excepting for one year's absence for Army service in World War I. He moved to St. Paul in 1920 and a year later established his offices at St. Cloud.

Dr. Schatz has done postgraduate work in obstetrics at the Chicago Postgraduate School, Chicago Lying-in Hospital, Washington University, Tulane University and the Maternity Hospital at the University of Minnesota.

Since locating at St. Cloud, Dr. Schatz has delivered 7,700 babies—more than half of them in homes.

* * *

Dr. J. A. Malerich, St. Paul, has returned from Denver, where he has been studying at the University of Colorado for the past year. Dr. Malerich, who was in practice on the West Side for a number of years, has reopened his offices there in association with **Dr. E. A. Johnson.**

* * *

Announcement has been made of the appointment of **Dr. Arthur T. Hertig,** a former Minnesotan, as Shattuck professor of pathology at Harvard University Medical School.

Dr. Hertig, who is pathologist and senior obstetrician at the Lying-in Hospital at Boston, Massachusetts, was awarded a medal for outstanding achievement at the University of Minnesota Centennial exercises in 1950.

In his new appointment, the doctor will be mainly concerned with teaching and research. His research career dates back prior to his graduation from the university in 1928, when, at 21, he went to China as an entomologist to do research on fly-borne diseases.

* * *

Retirement in July terminated 34 years of association with the Mayo Clinic for **Dr. John de Jarnette Pemberton**—a tenure of service exceeded by only two other members of the Clinic. They were **Dr. H. W. Meyerding,** who was there for thirty-eight years and **Dr. D. C. Balfour,** 37 years. A general surgeon, Dr. Pemberton was particularly interested in surgery of the thyroid gland.

Born on May 3, 1887, in Wadesboro, North Carolina, Dr. Pemberton graduated from the University of North Carolina and received his medical degree from the University of Pennsylvania in 1911. After interning at the Protestant Episcopal Hospital in Philadelphia, he came to the Mayo Clinic as a fellow in surgery on May 1, 1913. The following year he was appointed first assistant in surgery and on January 1, 1918, was made head of a section on surgery. That same year he received an M.S. degree in surgery from the University of Minnesota.

Since 1936 he has filled the post of professor of surgery in the Mayo Foundation graduate school, University of Minnesota. He was certified as a specialist in surgery by the American Board of Surgery in 1937.

* * *

Dr. Leroy W. Hanson, Minneapolis, is now associated with **Dr. Henry A. Korday** in practice at Pelican Rapids. Formerly a resident of Hallock, Dr. Hanson, who received his medical degree at the University of Minnesota, recently completed a year's surgical training at the Minneapolis General Hospital. During World War II he served for two years in the Army Medical Corps.

* * *

Announcement has been made of the appointment of **Dr. Harold Kletschka,** recently surgeon with the Bratrud Clinic at Thief River Falls, to the surgical staff of the New York University Medical Center, New York City, where he assumed his duties in July.

A graduate of the University of Minnesota Medical School, Dr. Kletschka served his internship and had one year of surgical training at Kings County Hospital, New York City. From there he went to the University of Michigan, where he did postgraduate work in general and thoracic surgery for two years.

* * *

Dr. James A. Nesse, formerly of Thief River Falls, has joined **Dr. Paul C. Leck** in medical practice at Austin, with offices in the Medical Building at 605 N. Main Street.

Dr. Nesse took his pre-medical work at St. Olaf College, Northfield, where he graduated in 1941. He then enlisted in the Air Force and completed 35 missions as a bomber pilot in the ETO. Following his separation from service, he enrolled at the University of Minnesota and received his medical degree in 1949. His internship was served at Brook General Hospital, San Antonio, Texas. Recalled to military duty as an officer in the Air Force Medical Corps, Dr. Nesse served fourteen months in England, Japan and Korea. Following his discharge from service, he did nine months of postgraduate study at the University of Colorado and the Denver General Hospital.

* * *

The clinic at Gibbon, which was closed for ten months, leaving the community without a resident physician, has been reopened by **Dr. A. Raynor** and **Dr. B. Racer,** both recent graduates of the University of Minnesota Medical School.

Dr. Racer is a native of St. Paul, and Dr. Raynor comes from Des Moines, Iowa.

* * *

Drs. W. T. Nygren and **E. F. Beyer,** Braham, are now located on the ground floor of a building purchased by Dr. Nygren last March and which he has had remodeled to accommodate the needs of modern medical practice. Formerly, the doctor's offices were located on a second floor and patients had to climb a stairs to reach them.

Consisting of eleven rooms—offices, laboratory, x-ray room, lavatories, and closets—the new quarters are completely air-conditioned.

The change of location also effected a change in name to the "Braham Clinic."

* * *

Offices for part-time practice of medicine in Floodwood were opened on July 15 by **Dr. Arnold I. Rajala,** of the Itasaca Clinic at Grand Rapids. A native of Cromwell, Dr. Rajala received his medical degree from the University of Minnesota in 1951, completed a year's internship at the Minneapolis General Hospital on July 1, and joined the Itasca Clinic on July 10. A veteran of World War II, he served in the Army Intelligence on Okinawa for three years.

* * *

Dr. Herman Miller, physician and surgeon, of Worthington, has moved to Grand Meadow, a community that has been without medical service since the death of **Dr. A. W. Eckstein** a year ago.

* * *

Effective July 1, **Dr. Milton Kaiser** became associated in practice with **Dr. Howard Vogel** at his clinic in New Ulm.

A native of Humboldt, Nebr., Dr. Kaiser is a veteran of World War II, and it was while on assignment with the combat engineers that the idea of studying medicine first occurred to him. Following his separation from service in 1946, he returned to the University of Nebraska to take his medical training. He interned at Miller Hospital, St. Paul.

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Dr. Louis J. Wilson, has joined his father, **Dr. R. H. Wilson,** in medical practice at Winona.

Dr. Wilson received his M.D. degree at the University of Minnesota in June, having entered the medical school in 1947 and interned at St. Joseph's Hospital in St. Paul.

Born in Minneapolis on April 19, 1923, Dr. Wilson graduated from high school at Winona, then entered Grinnell College, Grinnel, Iowa, where he studied for two years. The summer and fall semesters of 1943 he spent at the University of Minnesota, prior to going on active duty in the Navy in January, 1944. As an ensign, Dr. Wilson served on an aircraft carrier in the Pacific Theater until April, 1946.

* * *

Dr. Roger L. Anderson, who recently completed his internship at the Minneapolis General Hospital, has returned to his home town, Detroit Lakes, to practice in association with **Dr. William C. Dodds.** Dr. Anderson took his medical degree at the University of Minnesota.

* * *

Dr. L. W. Barry and **Dr. Nora Winther** (Mrs. Barry) recently returned from Europe where they attended the meeting of the International College of Surgeons—the main meeting in Madrid and sectional gatherings in Bordeaux, Barcelona, Lisbon and Vienna—and visited with Dr. Barry's daughter, Helen (Mrs. Harry Skornia) in Vienna. Mr. Skornia is with the State Department there. They also visited in England.

Announcement has been made of the establishment of a medical partnership consisting of **Dr. W. H. Barr,** of Wells, and his son **Dr. James Barr.**

A 1951 graduate of the University of Minnesota, Dr. Barr completed his internship at Ancker Hospital in St. Paul on July 1.

* * *

The offices vacated by **Dr. Merton Johnson** at Storden have been leased by Dr. Milton W. Pucker, who took over July 1.

Thirty-one years old, Dr. Pucker is a native South Dakotan. He began his medical studies at the University of South Dakota School of Medicine, but completed them at the University of Nebraska, where he was graduated in May, 1951. During World War II he served three and a half years in the Air Force Medical Corps.

* * *

Thirty-two years of practice and on the job every day is the unusual record of **Dr. A. W. Graham,** of Chisholm, where he came in 1908 after answering an ad in a medical journal for a young doctor at the Mesabi Clinic. On the day he arrived, only the school and church were standing, as the rest of the community lay in ruins as the result of a devasting forest fire. Though sorely tempted to go back east, Dr. Graham stayed on and helped get Chisholm back in shape.

In 1917, Dr. Graham was appointed school physician, but he has always done more than just examine the school children; he sees that they get proper care.

An outfielder with the New York Giants prior to entering medical practice, Dr. Graham is still a fan and played until eight years ago. Once a year he goes back to North Carolina, where his brother Frank was formerly president of the University, but is now a UN mediator in the Kasmir dispute between Pakistan and India.

During his 32 years of practice at Chisholm, Dr. Graham has made fifty-five trips to Rochester, so as to keep in touch with medical advances.

* * *

Dr. William F. Skaife, who recently completed his internship at Northwestern Hospital in Minneapolis, has joined **Drs. D. L. Johnson, A. H. Benson** and **Robert A. Stoy** in practice at Little Falls.

The son of Sam Skaife, druggist at Staples, Dr. Skaife took his pre-medic work at St. John's University at Collegeville and received his medical degree from Albany Medical College, Albany, New York in 1951.

* * *

A change of name has been reported by the **Estrem Clinic,** Fergus Falls, to the **Park Region Medical Center.** A new clinic building is now under construction and will be ready for occupancy this fall.

Members of the staff are Dr. Carl O. Estrem, Dr. Emmett A. Heiberg, Dr. Glenn J. Mouritsen, Dr. Carl J. Lund, Dr. Robert D. Estrem, Dr. Ralph Estrem and Dr. Rolf Daehlin.

* * *

The AMA Council on National Emergency Medical Service has announced availability of a booklet, **Medical Aspects of Civil Defense,** which covers the medical problems involved in civil defense. Included are items on civil defense organization, medical aspects of biological warfare, chemical defense, atomic burn injury, nature of air-raid casualties, mental health and atom-bomb injury.

Copies are being distributed to all chairmen of state emergency medical service committees. Additional copies, at 25 cents each, can be obtained from the Council on National Emergency Medical Service of the AMA.

* * *

Dr. Harold Thysell, formerly of Moorhead is now practicing in Crookston where he is associated with the Crookston Clinic.

A veteran of World War II, Dr. Thysell was a fighter pilot on assignment with the Air Force in Italy. He received his medical degree from the University of Minnesota in 1951 and, until locating at Crookston, was an intern at Ancker Hospital in St. Paul.

* * *

Stella Elizabeth Delavan, daughter of the late Dr. Philip Delavan of Saint Paul, has won a scholarship to the University of California and will study medicine. She is the granddaughter of the late Dr. Owen McKeon of Saint Paul.

* * *

At the commencement convocation of the University of Minnesota which was held in Minneapolis July 24, at 8:00 o'clock, the following physicians were awarded degrees for work done in the **Mayo Foundation:** Dr. N. C. Hightower, Jr., Ph.D. in Physiology; Dr. R. C. Knutson, M.S. in Anesthesiology; Drs. W. G. Bannon, A. W. Robinson and D. A. Scholz, M.S., in Medicine; Dr. J. H. Webb, M.S., in Neurosurgery; Dr. C. L. Lay, M.S., in Obstetrics and Gynecology; Drs. W. H. Benedict and P. M. Brickley, M.S., in Ophthalmology; Drs. D. L. Becker, R. A. Seale and L. A. Stapley, M.S., in Pathology; Drs. A. S. Anderson and J. B. Seagle, M.S., in Pediatrics; Drs. H. A. Johnson and J. K. Masson, M.S., in Plastic Surgery; Drs. J. C. Carlisle, H. R. Stowe and E. A. Swift, M.S., in Surgery, and Drs. K. O. Ghormley, J. R. Longley, E. J. O'Shaughnessy and R. E. Wineland, M.S., in Urology.

HOSPITAL NEWS

Announcement has been made of the appointment of **Dr. John Reitmann,** superintendent of Sandstone State Hospital, as temporary superintendent of the Anoka State Hospital.

According to Jarle Leirfallom, acting state director of public institutions, Dr. Reitmann, who is the

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* Lane, C. G., "Therapeutic Dermatitis", New Eng. J. Med., 246:77-81, 1952
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youngest superintendent in Minnesota mental hospitals, had requested that he be relieved of his duties at Sandstone, in order to continue psychiatric study at Rochester State Hospital. However, because of the emergency which resulted from the death in July of **Dr. Edmund Miller,** superintendent at Anoka for the past nine years, Dr. Reitmann will be in charge of both Anoka and Sandstone until a permanent superintendent can be secured.

* * *

The Community Hospital elected **Dr. Kenneth March** of Cambridge as chief of staff at the regular meeting in June. Other officers elected at this time are **Dr. Gerald Larson,** of Cambridge, vice president, and **Dr. Gordon Tesch,** of Elk River, secretary-treasurer.

Marianne Borglin, of St. Paul, joined the staff as x-ray technician on June 18.

* * *

The **Appleton Municipal Hospital** was officially opened on July 3, when the dedication services were attended by 1,750 persons. The program included addresses by **Dr. Fred W. Behmler,** of Morris, formerly in practice at Appleton and now president of the State Board of Health; **Dr. Roger Kennedy,** president of the State Medical Society; **Dr. Robert Barr,** deputy executive officer of the State Department of Health; and **Dr. Helen Knutson,** director of the division of hospital services, State Department of Health. Miss Lucy Wells, hospital administrator was presented with the key to the hospital by the architect.

Admittance of patients began on July 5, with the transfer of those who had been in Kauffman Hospital, which has served the community since Christmas, 1918. Kauffman has been closed and the village has sold the building.

BLUE CROSS-BLUE SHIELD

Minnesota Blue Shield Progress.—That Blue Shield is playing an increasingly important role in the economic phases of medical practice in Minnesota is shown from some of the statistical analyses contained in the 1951 Annual Report of Minnesota Medical Service, Inc., recently released. For instance, during the past year enrollment has increased one-fourth, payments of benefits to doctors for subscribers have increased almost one-half, and the proportion of costs of medical, surgical and obstetrical benefits have maintained practically the same previous ratio. Besides these facts, other analyses show growth, progress and increasing importance of Blue Shield in medical practice.

Persons covered or protected by Blue Shield increased 27.3 per cent during 1951. On January 1, 1951, 411,733 people were participant subscribers, whereas on December 31, 1951, this number had increased to 524,257. It is interesting to note further that 68,000 persons have single contracts while the family contracts total 128,000, giving a total of almost 200,000 contracts in effect. This portrays remarkable growth in the slightly more than four years during which Blue Shield has been in operation in Minnesota.

Increasing economic value of Blue Shield to the medical profession is evident in that the amount paid to doctors in claims has increased from $2,200,000 during 1950, to almost $3,100,000 in 1951. This represents an increase of 50 per cent during a period of only one year. Also, the total payment of over $6,600,000 in claims during a period slightly in excess of four years is remarkable.

Of further interest are the amounts paid during 1951 for different types of services. As shown in the report, surgical claims of $1,800,000, obstetrical claims of $559,000, medical claims of $518,000 and such ancillary claims as x-ray, endoscopy and anesthesia amounting to $140,000 were paid during 1951. These figures represent a 78 per cent increase in the number of obstetrical claims, and a 35 and 19 per cent increase in the number of surgical and medical claims respectively. In this regard it is also pertinent that claims cost increased 4.4 per cent per contract during 1951; that is, it increased from $16.54 per contract in 1950 to $17.26 per contract in 1951.

In other reports made concerning Blue Shield during the last meeting of the Minnesota State Medical Association, it was stated that in its first four years Blue Shield has increased benefits on four different occasions. These benefit or fee increases have consisted of raising the appendectomy fee from $75 to $100, increasing the tonsillectomy fee from $25 to $30 for children under thirteen years of age, initiating emergency medical care at daily rates above routine medical care, and establishing a more liberal policy of paying home and office calls for surgical treatment of wounds. In addition to these benefit increases, predictions have been made that many more fee increases will be announced in the near future. By comparison with the remaining seventy-five or more Blue Shield plans of the country, this record of increasing fees or benefits is second to none.

New Blue Cross-Blue Shield Radio Program.—For over a year Cedric Adams has continued to prove his worth as "Good Will Ambassador" for Minnesota Blue Cross-Blue Shield, first in a limited way on radio spot announcements and, since last December, on the popular and effective "Dinner At The Adams" half-hour Friday night program over WCCO-CBS. During this period, in addition to immeasurable service in building good will for Blue Cross-Blue Shield, Cedric has achieved very tangible results in securing over 12,000 inquiries, many of which have been converted into new Blue Cross and Blue Shield subscriber contracts.

Therefore, commencing Sunday, June 29, the Cedric Adams' WCCO radio presentation "Musical Guests" has been adapted to include three fifteen-minute programs per week (rather than one-half hour show) according to the following schedule:

Sunday	7:00-7:15 p.m.
Tuesday	6:30-6:45 p.m.
Thursday	6:30-6:45 p.m.

Further, in line with an idea formulated earlier in the year and as a further extension of the "dinner guest" idea, Cedric Adams' show has been changed to include music and top personalities of the entertainment world. Hence the new name for the show will be Cedric Adams' "Musical Guests." Each program will now be a personal and musical interview between Cedric Adams and one or more of the nation's top personalities of the musical or entertainment world. Some idea of the caliber of Cedric's guests can be gained by looking at the listing of stars scheduled to appear on forthcoming programs; they are Dinah Shore, Eddie Arnold, Rosemary Clooney, Tony Martin, Ginny Sims, Jo Stafford, Curt Massey, Jack Smith, June Hutton, Jack Owens, George Shearing and Paul Weston, to name only a few.

This type of wholesome, popular, musical entertainment is made possible only through a combination of Cedric Adams' nationwide friendship with celebrities, plus the desire on the part of these famous stars to co-operate with Blue Cross-Blue Shield on a public service basis. Otherwise such a superlative presentation of talent would be beyond the limited budget available to a service organization such as Blue Cross-Blue Shield.

It is apparent that these radio presentations, coupled with Cedric Adams' sincere and informative Blue Cross-Blue Shield messages to the public, will continue as a powerful magnet, winning and keeping many new friends for Minnesota Blue Cross-Blue Shield.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

FUNDAMENTALS OF PSYCHIATRY, by Edward A. Strecker, M.D., Sc.D., LL.D., Litt.D., F.A.C.P. Professor of Psychiatry and Chairman of the Department, Undergraduate and Graduate Schools of Medicine, University of Pennsylvania; Psychiatrist to the Pennsylvania, Philadelphia and Germantown Hospitals; Consultant and Chief-of-Service, Institute of the Pennsylvania Hospital; Consultant to the Surgeons General, U. S. Army and U. S. Navy, and formerly Consultant for the Secretary of War to the U.S.A.A.F.; Senior Consultant in Psychiatry, Veterans Administration; Consultant in Mental Hygiene, U.S.P.H.S.; Chairman, Committee on Psychiatry, National Research Council; Chairman, Committee on Psychiatry, American National Red Cross. 5th ed. 250 p. Illus. Cost $4.50. Philadelphia: J. B. Lippincott Co., 1952.

The fifth edition of this standard textbook of psychiatry is intended for all branches of the medical profession. Almost every phase of psychiatry is touched upon in the space of 237 pages.

The various diagnostic types of personality disturbance are presented descriptively. An attempt is made to explain some of the dynamic forces which are responsible for or are associated with a particular diagnostic category. The material presented is not controversial. Most readers should have little difficulty accepting the author's interpretations so far as they go.

As an introduction for those who have had little experience in psychiatry, the book has real value. The more experienced reader will find the book unsatisfying.

There is a helpful glossary of psychiatric terms.

Robert P. Bush, M.D.

CALCULATION OF INDUSTRIAL DISABILITIES OF THE EXTREMITIES. By Carl O. Rice, M.D., M.S., Ph.D., F.A.C.S., Clinical Associate Professor of Surgery, University of Minnesota Medical School Surgical Staff, St. Barnabas Hospital, Minneapolis, Minnesota. Drawings by Jean E. Hirsch. 289 p. Illus. Price $10.50. Springfield, Ill.: Charles C Thomas, Publisher, 1952.

This book will be of inestimable value to industrial surgeons. How to calculate industrial disabilities is given in a clear, simple manner. There is scarcely a disability that is not discussed and estimated, singly and in combination with other injuries. The illustrations are excellent, the type readable and the index complete. This volume is considered by this reviewer to be one of the best written to date on this subject.

APHORISMS OF DR. CHARLES HORACE MAYO (1865-1939) AND DR. WILLIAM JAMES MAYO (1861-1939). Collected by Fredrick A. Willius, M.D. 117 p. Price $2.75. Springfield, Ill.: Charles C Thomas, Publisher, 1951.

When one thinks of Medicine in Minnesota, one thinks of her most famous sons, Will and Charlie Mayo. Dr. Willius has collected a number of aphorisms of the

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Doctors Mayo, which show what great surgeons, humanitarians they were.

For some reason, Dr. Willius has seen fit to include the "lost oration" of Dr. Will Mayo before a committee of the Minnesota State Legislature on March 22, 1917, concerning the continuation of the affiliation of the graduate school of the University with the Mayo Foundation for medical education and research. At the time, the incident assumed the proportions of an international crisis; now to us of a later generation, the whole affair seems like the plot of a comic opera. It is akin to the case of the married couple where her folks at first do not approve of his; later when the union has been happy and fruitful, to bring up the past is not only distasteful but a little embarrassing.

There is a need for a book showing the development of the Mayo Brothers as surgeons. Some of this is given in the Clapesattle's, "The Doctors Mayo," but it is lost in the discussing of the family life, the development of the Clinic, et cetera. If Dr. Willius could do as well with the above subject as he has with the aphorisms, it will have a wide appeal.

RX FOR MEDICAL WRITING. A Useful Guide to Principles and Practice of Effective Scientific Writing and Illustration. By Edwin P. Jordan, M.D., and Willard C. Shepard. Price $2.50. Philadelphia: W. B. Saunders Co., 1952.

Dr. Jordan has supplied the material on medical writing and Mr. Shepard the section on illustrations. Both sections supply much valuable information for the physician who contemplates writing to the best of his ability.

The author emphasizes the fact that skill in writing is not a natural gift but is acquired by hard work. He discloses what is probably a secret to many—that the best written medical papers represent industry and numerous revisions.

This small volume is well written and speaks for the experience of both authors. It is a rather brief and well condensed treatise on the subject.

C.B.D.

PATHOLOGY OF THE FETUS AND THE NEWBORN. By Edith L. Potter, M.D., Ph.D., Associate Professor of Pathology, Department of Obstetrics and Gynecology, The University of Chicago; Pathologist, the Chicago Lying-in Hospital; Chief Pathologist, the Chicago Department of Health. 574 p. Illus. Price $19.00. Chicago: The Year Book Publishers, 1952.

Not many years ago, the chief causes of death in infants were listed as pneumonia, status lymphaticus, marasmus, exudation diathesis, and causes unknown. It was only through the accumulated efforts of pathologists like Dr. Potter that reasons for nonsurvival of infants were brought to light.

Like all of Dr. Potter's contributions, this volume is of high excellence. The chapter on the heart and blood vessels is particularly noteworthy. The illustrations throughout the book are exceptional for clarity. This book should have a wide appeal to pathologists, pediatricians and obstetricians. A workable index is appended.

MEDICAL BIOGRAPHIES: The Ailments of Thirty-Three Famous Persons. By Philip Marshall Dale, M.D. 244 pages. Illus. Price $4.00. Norman, Oklahoma: University of Oklahoma Press.

The author, now an internist practicing in Los Angeles, has been interested in medical history throughout his medical career. He has produced an interesting volume, the result of considerable research, in which he has analyzed the ailments of thirty-three famous persons in the light of modern medical knowledge. To anyone who finds history and especially medical history interesting the reading of this volume will prove fascinating and instructive.

After reading this book one is struck by the fact that so many of the great in the past triumphed in spite of physical handicaps often of severe degree. Also one is conscious of the advance in medical science which, through correct diagnosis and treatment, makes much of the suffering of the past unnecessary today.

C.B.D.

ENDOCRINE FUNCTIONS OF THE PANCREAS. By Bernard Zimmermann, M.D., Department of Surgery, University of Minnesota, Minneapolis, Minnesota. 82 p. Illus. Price $2.50. Springfield, Ill., Charles C Thomas, Publisher, 1952.

This monograph is one of the series in the American lectures in endocrinology and is one of the best to date.

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Dr. Zimmermann has done a superb job in summarizing the vast literature dealing with the pancreas and the bibliography is amazingly complete for such a small volume. The chapters on the metabolism in diabetes and the action of insulin (chapter III) and the hyperglycemic factor (chapter VI) are excellent. His conclusions (chapter VII) give thoughtful consideration of the direction for future research on the endocrine function of the pancreas.

As usual, Mr. Charles C Thomas, the publisher, has printed a book of which the physical and artistic qualities are of high caliber. This book should have a wide appeal to all medical men.

TULAREMIA, WEATHER, AND RABBIT POPULATIONS. By Ralph E. Yeatter and David H. Thompson. Illinois Natural History Survey Bulletin, Volume 25, Article 6, 31 pages, 29 figures, bibliography.

This publication, a new article of the Bulletin series, includes a brief history of tularemia, and lists the means by which this disease is spread among wildlife species and human beings. It contains a discussion of the relationship in the United States, particularly Illinois, between rabbit populations, weather, and the incidence of tularemia, and offers suggestions for individual and public measures by which the number of tularemia cases among rabbit hunters can be reduced.

Single copies are free on request until the supply runs low. Additional copies are a subject for correspondence. Requests should be addressed to: Illinois Natural History Survey, Dr. Harlow B. Mills, Chief, 172 Natural Resources Building, Urbana, Illinois.

THE HUMAN PELVIS. By Carl C. Francis, A.B., M.D., Assistant Professor of Anatomy, Department of Anatomy, Western Reserve University, Cleveland, Ohio. 210 pages. Illus. Cost $5.50. St. Louis: C. V. Mosby Co., 1952.

Not too often does a reviewer report his impressions of a book with a full sense of pleasure and satisfaction. "The Human Pelvis" by Francis has afforded this reviewer such an experience.

The text provides a wealth of material in the refreshing atmosphere of a small handbook. Compilation of this book must have been motivated by the desire to provide a source of information which had hitherto been lacking on the subject. The author has succeeded in presenting the anatomy of the pelvis in a manner that is easily intelligible to his readers. For the general surgeon as well as for the urologist, gynecologist, and proctologist many details of anatomy which previously had been of little practical import now are brought into full clinical significance. Vague and unrelated anatomical relationships have been clarified and co-ordinated. The chapter on muscles and fascia particularly deserves commendation. In no other text is it possible to find a description of these structures so clearly presented as in this book.

William C. Bernstein, M.D.

AMA BOOKS OFF THE PRESSES

The AMA's Council on Pharmacy and Chemistry announces that new editions of two of its major publications—"New and Nonofficial Remedies" and "Useful Drugs"—will be available this summer. The 1952 edition of "New and Nonofficial Remedies" retails for three dollars postpaid and "Useful Drugs" (15th edition) for $2.50 postpaid. Both may be secured through the publishers, J. B. Lippincott Co., Philadelphia, bookstores, or single copies through the AMA's Order Department.

TIPS FOR THE DOCTOR'S SECRETARY

Practical public relations techniques for dealing with the doctor's patients are included in two new illustrated booklets which the American Medical Association soon will make available to physicians. A twenty-page pamphlet—designed as a brief guide for secretaries—will be sent to all AMA members. Especially valuable as a training guide for girls interested in becoming medical secretaries is the sixty-page detailed manual which was made available July 1 to individual physicians through state medical society offices.

FACTS TO REMEMBER

The Citizens Committee for the Hoover Report on the Reorganization of the Federal Government states that in one unit of the VA there were 24 supervisors in charge of 25 employes. The personnel question assumed added importance when the Federal budget called for the addition of 150,000 employes to the 2,500,000 already on the rolls. Salaries now cost taxpayers about eight billion a year, the Committee reports.

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RESUSCITATION OF THE NEWBORN

(Continued from Page 752)

3. Draper, W. B.; Whitehead, R. W., and Spencer, J. N.: Studies in diffusion respiration III. Alveolar gases and venous blood pH of dogs during diffusion respiration. Anesthesiology, 8:524 (Sept.) 1947.
4. Eckenhoff, J. E.: Some anatomic considerations of the infant larynx influencing anesthesia. Anesthesiology, 12:101 (July) 1951.
5. Editorial: Bronchoscopy in the newborn. J.A.M.A., 148:941 (March) 1952.
6. Flagg, P. J.: Asphyxia neonatorum. Surg., Gynec. & Obst., 67:153 (Aug.) 1938.
7. Kane, H. F., and Kreiselman, J.: The carbon dioxide content of the blood in the newborn. Am. J. Obst. & Gynec., 20:826, 1930.
8. Leffingwell, F. E.: Office practice of anesthesia. J.A.M.A., 148:1181, 1952.
9. Little, D. M.; D'Andrea, F. H., and Mastrangelo, A.: Gastric aspiration as a technique for prevention of asphyxia in the newborn infant. Surg., Gynec. & Obst., 93:363 (Sept.) 1951.
10. Mousel, L. H., and Essex, H. E.: An experimental study of the effects of respiratory stimulants in animals under pentothal sodium anesthesia. Anesthesiology, 2:272, 1941.
11. Ross, J. D., and Strong, R. A.: Resuscitation of the asphyxiated newborn infant. Am. J. Dis. Children, 61:1-12, 1941.
12. Sharp and Dohme: Physiology of the newborn. Seminar, 14:17 (March) 1952.
13. Snyder, F. F., and Rosenfeld, M.: Intrauterine respiratory movements of the human fetus. J.A.M.A., 108:1946, 1937.

IN MEMORIAM

(Continued from Page 782)

River Falls; Harold of Evanston, Illinois; Theodore, a captain in the United States navy; and William of Oakland, California.

GEORGE J. TWEEDY

Dr. George J. Tweedy, a physician in Winona, Minnesota, since 1893, died July 20, 1952 at his home at the age of ninety.

Dr. Tweedy was born in Vernon River, Prince Edward Island, Canada, March 14, 1862. He graduated from Prince of Wales College, Prince Edward Island and received his medical degree from Toronto University in 1890. After taking postgraduate study at G.M.P. and So Ho Hospital for women in London, England, he located at Winona.

Dr. Tweedy was a fellow of the American College of Surgeons. He was a member of the Winona County Medical Society, the Minnesota State Medical Asssociation and the American Medical Association. During World War I he served as a captain in the United States Army Medical Corps.

He was a member of the Masonic Order, the Improved Order of Red Men, the Independent Order of Odd Fellows, the American Legion, the Arlington Club and the Winona Country Club.

Dr. Tweedy is survived by his wife, two sons, Dr. Robert Tweedy and Dr. John Tweedy, both of Winona and six grandchildren.

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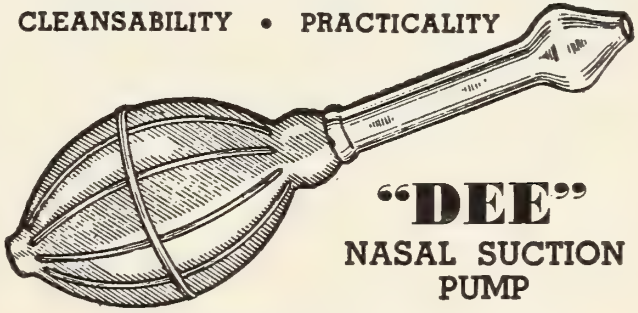

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Volume 35 **September, 1952** **Number 9**

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*Sobel, S. H.: Milk Allergy in a case of Triplets, *Clin. Med.*, August 1952.

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*Davis, W. D., Jr.: A Critical Evaluation of Therapy in Cirrhosis of the Liver, South. M. J. *44*:577 (July) 1951.

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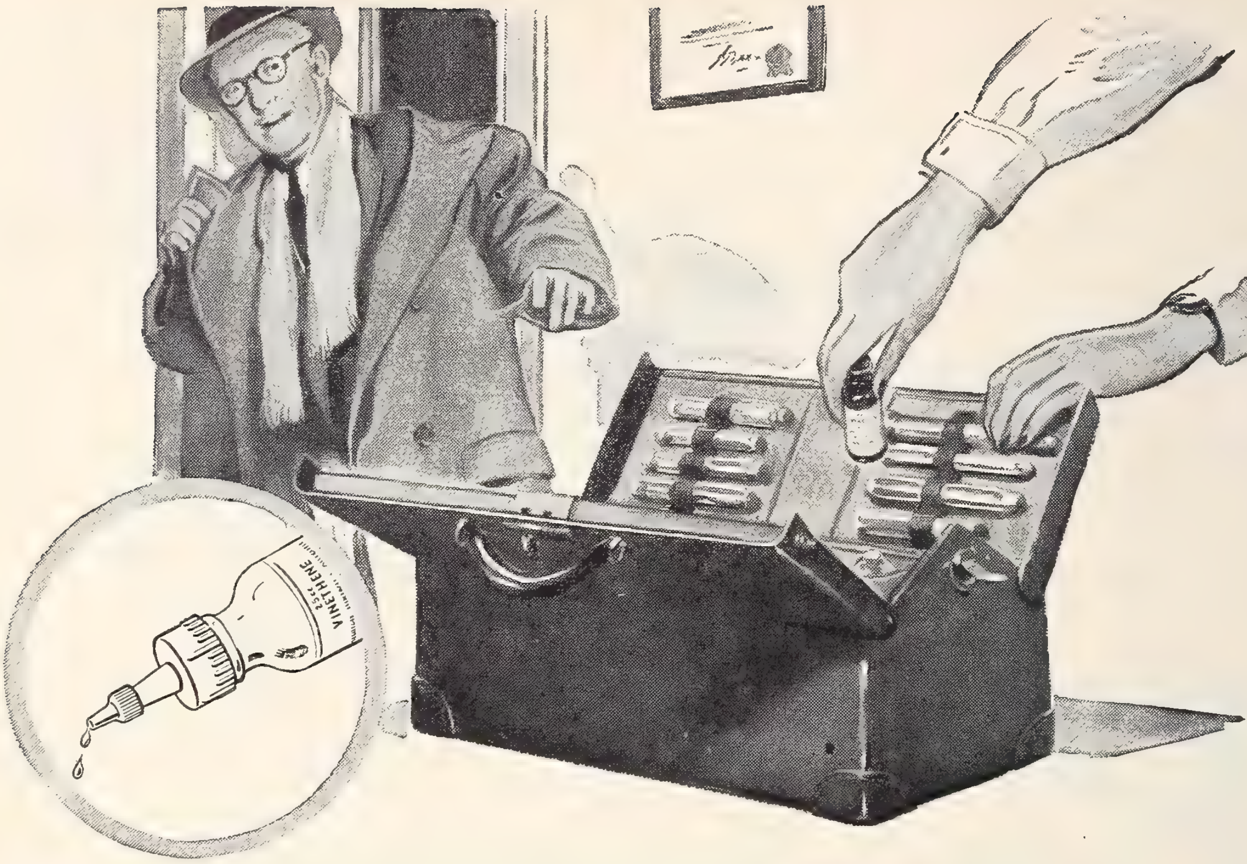

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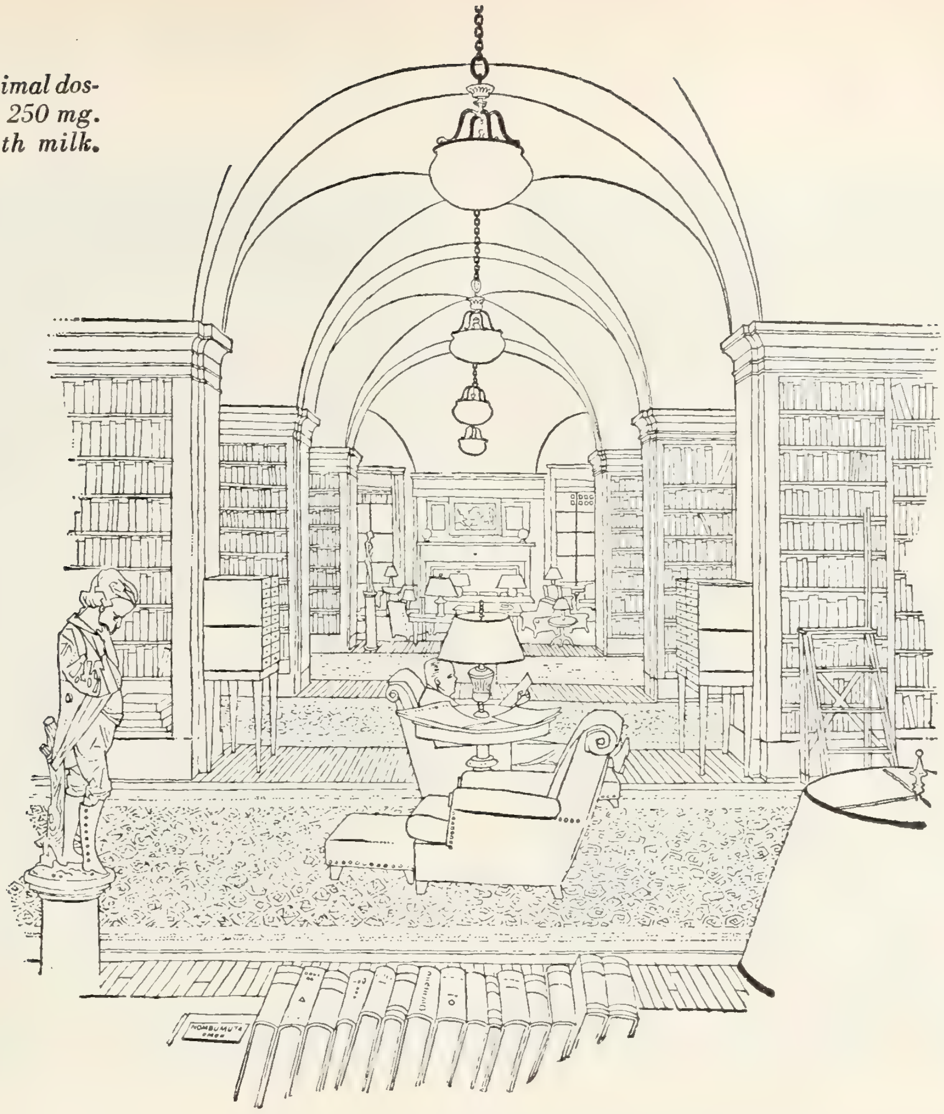

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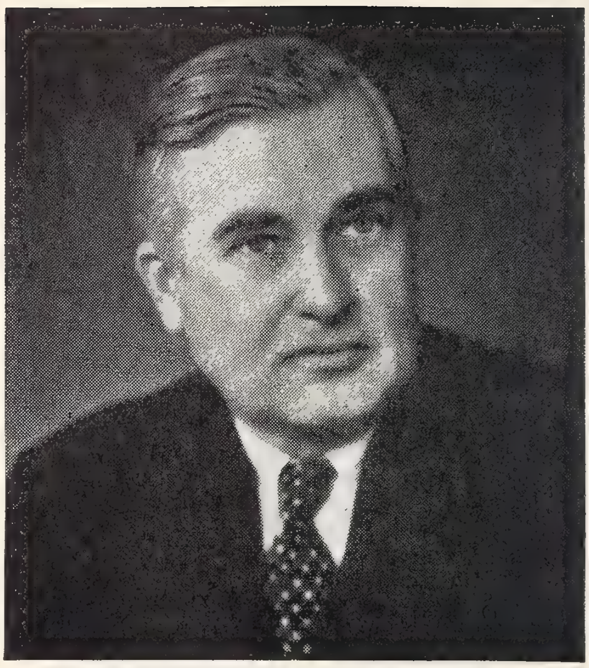

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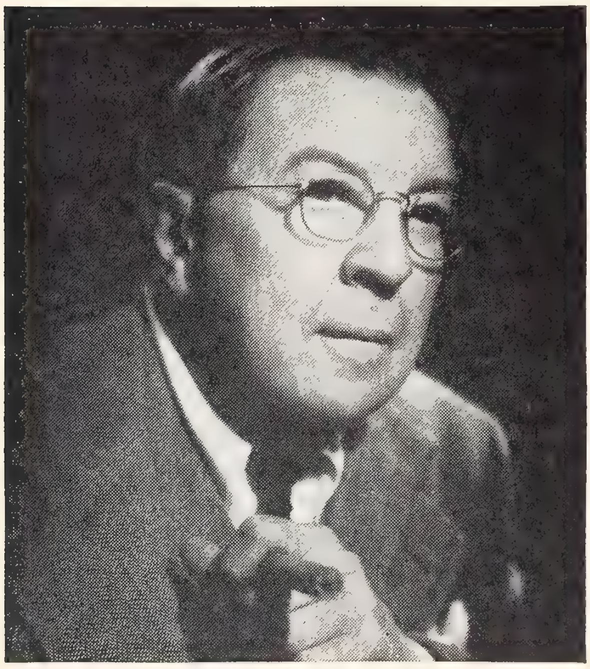

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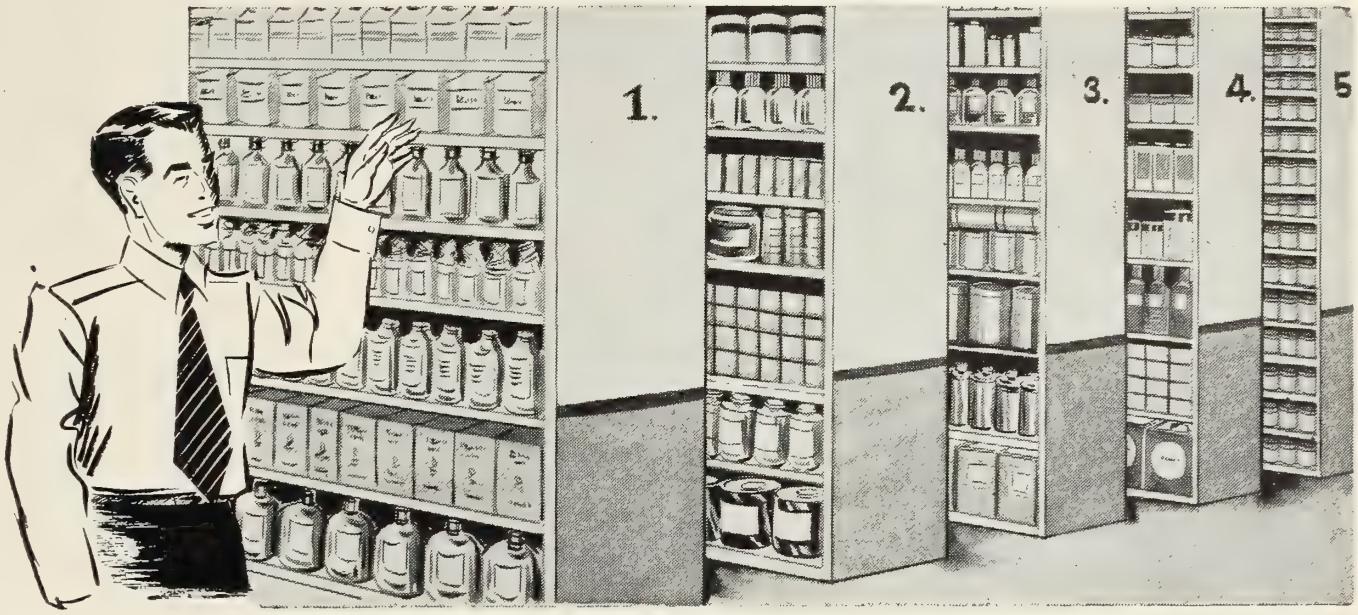

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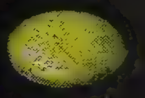

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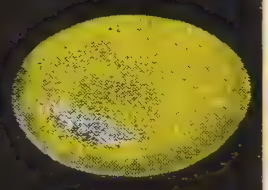

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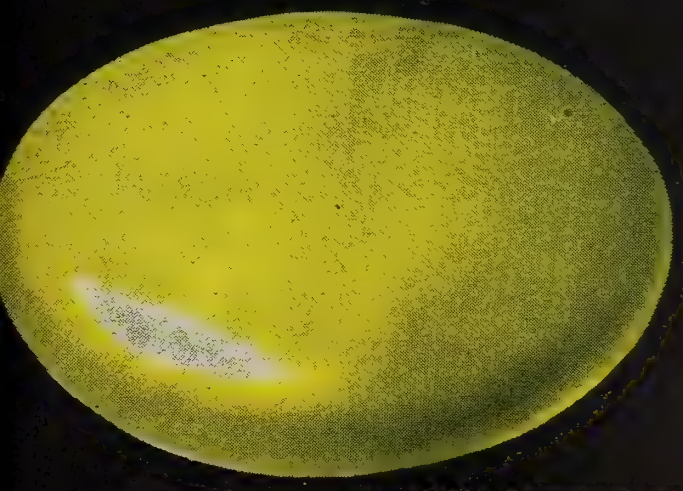

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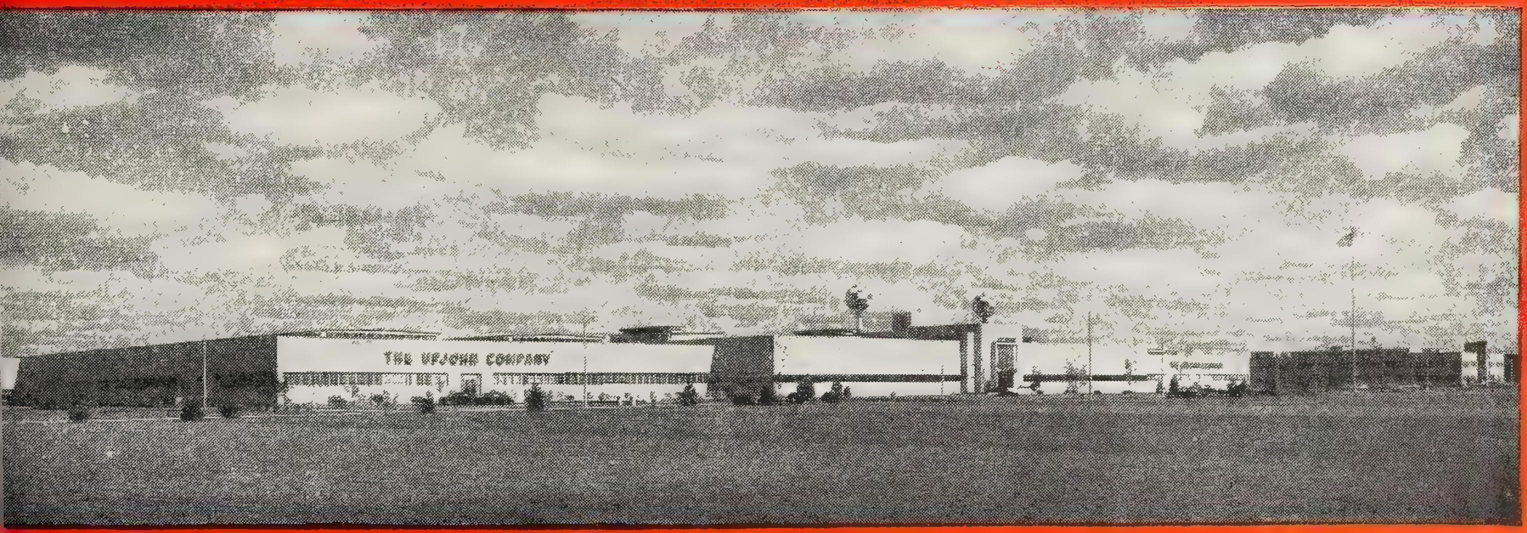

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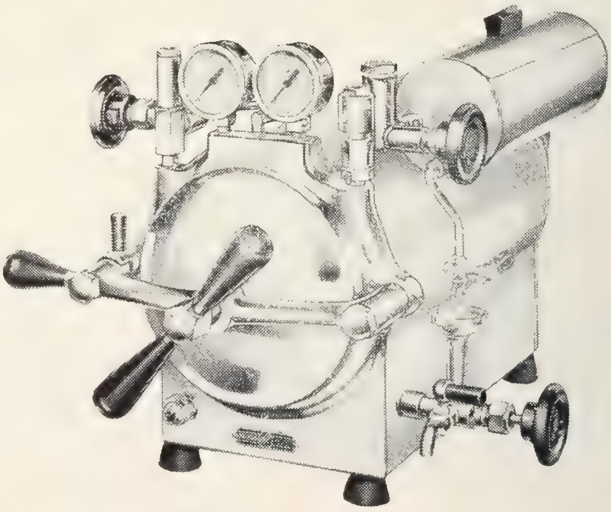

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1. Hutcheson, J. M.: Management of Cardiac Failure. *Virginia Med. Monthly*, 74:458, Oct., 1947.
2. Noth, P. H.: Pick's Disease: A Record of Eight Years' Treatment with Salyrgan, Ammonium Nitrate, and Abdominal Paracentesis. *Proc. Staff Meet. Mayo Clin.*, 12:513, Aug. 18, 1937.

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Adams, R. Charles (1951), Intravenous Administration of Pentothal Sodium in Combination with Other Anesthetic Agents and Methods, J. Missouri Med. Assn., August.

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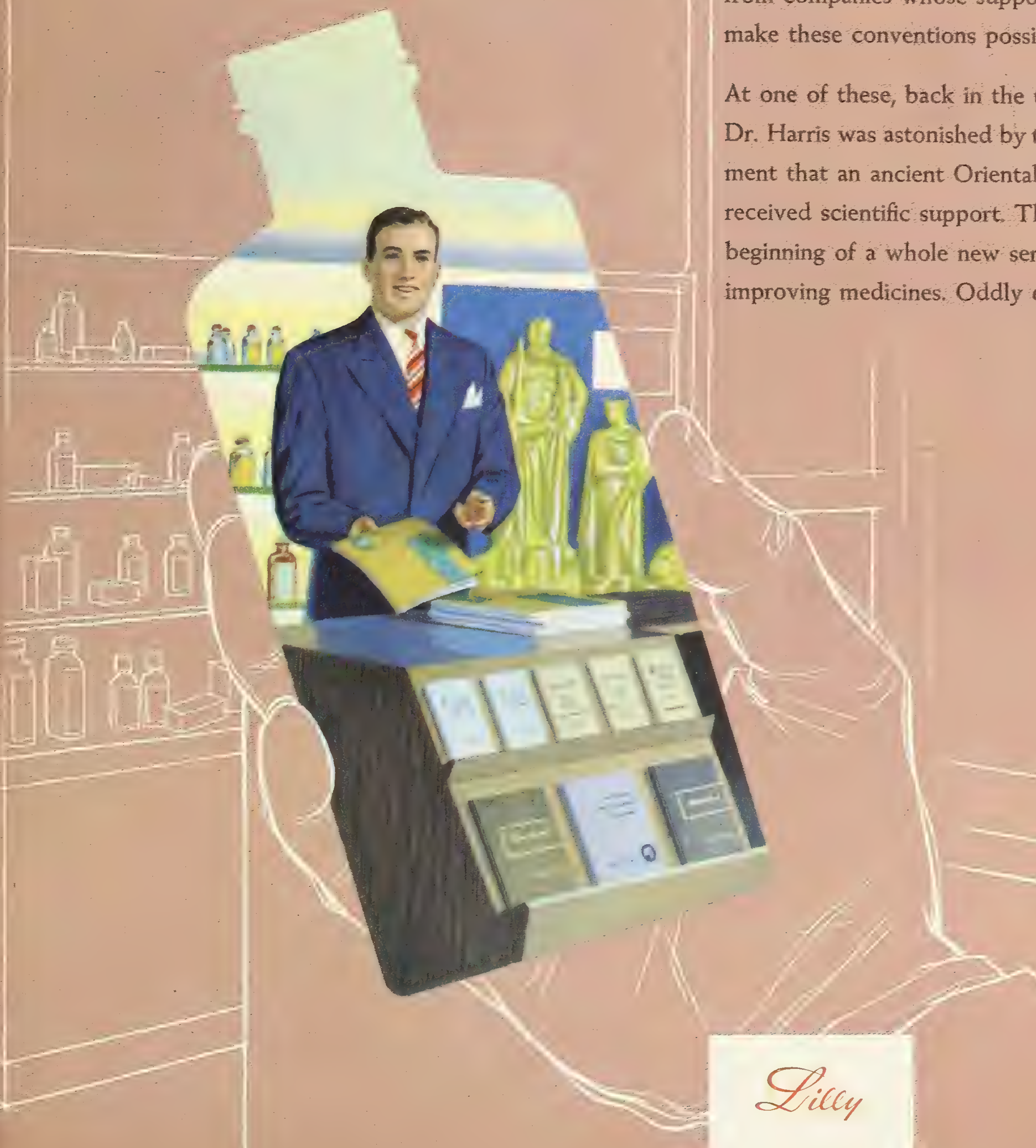
At one of these, back in the twenties, Dr. Harris was astonished by the announcement that an ancient Oriental herb had received scientific support. This was the beginning of a whole new series of ever-improving medicines. Oddly enough . . .



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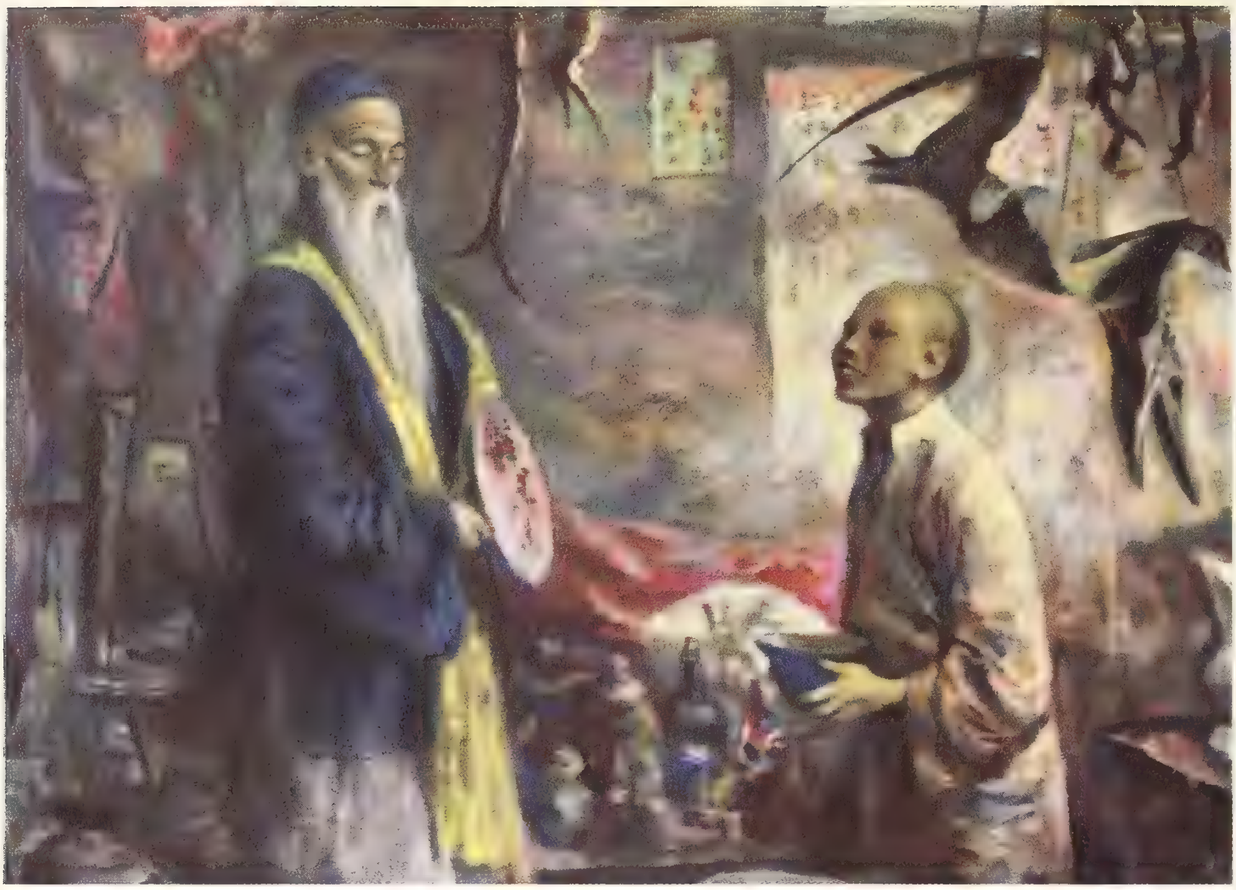

. . . it all began with Ma Huang

In the Chinese village of his birth, young Chen had seen things which assured him that many of the herbs which his people had used for thousands of years were potent remedies. This he believed despite his respect for the Western doctor who would use only drugs from abroad—drugs which were scientifically established. Eventually his ambition to prove his belief brought him to America, where he studied pharmacy and, later, advanced chemistry, physiology, pharmacology, and, finally, medicine. Thus equipped, he returned to China, where he began his experiments with the herb Ma Huang. After isolating the active principle as crystalline ephedrine, he and Dr. Carl F. Schmidt conducted experiments and proved that ephedrine truly had the properties for which the crude drug had been used empirically. Following the well-received presentation of these facts to the 1926 convention of the American Medical Association, Dr. Chen accepted the direction of Lilly's pharmacologic research. There, continuation of his studies was instrumental in developing a series of even better synthetic decongestants. Thus, paradoxically, a small boy's faith in his people's traditions led to progress in modern medicine.

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 September, 1952 Number 9

THE TREATMENT OF THE CONVALESCENT CARDIAC PATIENT

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Professor of Clinical Medicine
University of Wisconsin Medical School
Madison, Wisconsin

THE TWO most common cardiac conditions requiring prolonged and intensive treatment are congestive failure and acute coronary occlusion. I shall confine my remarks to the management of the convalescent periods following these two episodes.

Decompensation

It is not within the scope of this discussion to go into the treatment of the acutely decompensated patient and I shall simply have to assume that the generally accepted measures such as rest, sodium restriction, oxygen, digitalization, and diuresis have been instituted and that the patient has responded satisfactorily. It is not easy to define the exact point at which convalescence begins but for the purposes of this discussion we may consider that when the chief signs of decompensation (dyspnea, pulmonary congestion, liver engorgement, and peripheral edema) have largely disappeared and the patient is obviously on the mend, the convalescent period has been reached.

Physical Activity.—Years ago prolonged bed rest was the vogue, but we have learned through sad experience that absolute bed rest can be overdone and is not without its hazards and complications. Even during the acute stage of decompensation the patient should not be expected to lie flat but should be supported at the angle which affords the greatest degree of comfort. Usually this will be a nearly sitting position.

Passive exercises of the legs should be instituted early even before the congestive failure has completely subsided, and after a few days the patient should be urged to exercise the leg muscles by flexing and extending the knees ten to twenty times on several occasions during the day. The decompensated patient has a peculiar tendency to develop phlebothrombosis but with a little attention to daily leg exercises this need not be feared.

Ordinarily by the end of the first week, if the treatment has been successful, the patient can be placed in a comfortable chair close to the bed, with his feet on a stool. Starting with thirty minutes morning and afternoon the sitting-up periods may be lengthened gradually as tolerated. The patient's own sense of fatigue should be the criterion for returning to bed. As soon as he is able to sit up comfortably for two hours in the morning and two hours in the afternoon he could begin to take a few steps and after another day or two should be on bathroom privileges.. As this point most patients can be discharged to their homes where activity is gradually increased as tolerated. It may be another two or three weeks before stair climbing should be attempted. Short walks out of doors are then in order, and when the patient is finally able to be up and around a good share of the day without undue fatigue the convalescent period can be considered at an end.

Diet.—It is now common practice to place the decompensated patient on a "low sodium" diet with the sodium restricted to less than 1 gram a day, Schemm's neutral or acid ash diet has been found highly satisfactory. This can be car-

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Presented at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

ried right through the convalescent period with perhaps some relaxation of the sodium restriction after the first week or two. A simple but effective method of determining whether or not the patient is taking too much salt is to weigh him every morning before breakfast and any tendency for fluid to accumulate in the tissues as the result of poor electrolyte balance will promptly manifest itself in a weight gain. In very severe and stubborn cases where edema has been difficult to control one may resort to the Kempner rice diet for the period of convalescence. It is important to make certain that an acute sodium deficiency does not develop as this may be far more dangerous than a mild degree of congestive failure. Salt substitutes may be tried but, unfortunately, the one which most resembles sodium chloride contains lithium which has been found highly toxic in a few instances. However, small amounts of this material can be permitted especially if the sodium intake has not been too drastically restricted.

Fluids.—Up until ten years ago it was fashionable to restrict drastically the fluid intake of the decompensated patient as the general anasarca indicated only too obviously that he already had an excess of water in his system. From time to time a timorous voice had been raised in protest against severe fluid restriction but it remained for Schemm, speaking in Saint Paul just ten years ago, to wake us up to the fact that an edematous patient could at the same time be markedly dehydrated and a prompt diuresis induced by forcing fluids. This was greeted as rank heresy at the time but those who had the courage to try it quickly found that Schemm was right. It is now common practice to encourage the decompensated patient to drink all the water he desires and attempt to keep the daily fluid intake at three liters or better. Orange juice, grapefruit juice, and lemonade have to be curtailed to a certain extent due to their sodium content, and it is probably not wise to permit more than one-half glass of orange juice per day.

Digitalis.—In most instances a maintenance dose of digitalis is indicated right through the convalescent period. Many cardiologists still support the old adage, "Once digitalis, always digitalis," but this is not necessarily true and in appropriate cases this drug may be discontinued even before convalescence has been completed.

Diuretics.—In considering diuretics we are quite apt to think only of the mercurials and forget that other less irritating and yet highly efficient diuretic drugs are available. It should be remembered that ammonium chloride is an effective diuretic and probably could be used a great deal more extensively than it is. One gram of enteric coated ammonium chloride taken four times daily frequently will keep the previously decompensated patient at "dry weight." In many instances it will be necessary to give the ammonium chloride only one week out of each month whereas others may have to take it steadily over a prolonged period of time. Many of us have all but lost sight of the xanthine diuretics which can be depended upon to promote an active diuresis in most instances without deleterious effect on the kidney. Ten grains of theocin three times a day for three days will usually get rid of any ordinary accumulation of fluid during the convalescent period. In the more stubborn cases mercurials may have to be resorted to and can be given either orally, parenterally, or in combination. Although the ion-exchange resins are not true diuretics they can frequently be depended upon to prevent the formation of edema in the milder cases.

Anticoagulants.—Dicumarol and other anticoagulants are not ordinarily indicated during the convalescent period unless embolic phenomena occur.

Vitamins.—It is usually well to give some one of the poly-vitamin preparations to these patients on restricted diets and perhaps the most important of the vitamins is the B complex.

Morale.—Fully as important as the proper medical treatment is the maintenance of the patient's morale. The physician, the nurse, and the family should make every effort to suround the patient with an air of cheerfulness at all times. Words of encouragement go a great deal farther than too much sympathy and commiseration. Much can be accomplished by stimulating the patient's interest in various fields such as music, art, science, history, literature, hand work, and even stamp collecting. Some patients with a flare for literary composition have become very creditable poets while recovering from an attack of heart failure. "Sad sacks" and gloomy friends who regale the patient with stories of similar cases which terminated fatally should be kept a long distance away.

Occupation.—As the end of the convalescent period approaches some thought has to be given to the future and to the type of occupation to be recommended for the patient when he is ready to resume his place in society. Obviously, it would not be wise to send the patient back into the type of work which precipitated the attack of congestive failure, but in many instances certain modifications can be instituted which will avoid the necessity of a complete change of occupation. In other instances it may be necessary to train the patient for an entirely different type of work. In the case of the housewife rearrangement of the kitchen and the institution of certain labor-saving methods may enable her to resume a considerable portion of her housework without endangering her health. In every case the objective should be to keep the cardiac patient contented and busy within the limits of his myocardial capacity and avoid so far as possible that most undesirable state of complete cardiac invalidism which, with a little thought and attention to certain details, can in the great majority of instances be postponed for many years.

Coronary Occlusion

Here again one has to be somewhat arbitrary in defining the onset of the convalescent period. One might consider that it did not start until the patient was out of bed. On the other hand, the myocardial infarct reaches its point of maximum softening about fifth day after the arterial closure and from then on the repair process goes on rapidly and one might consider that after the first week the acute phase is over and the patient is entering the convalescent period. In any event, I feel that the management from this point on is sufficiently important to warant our careful consideration and for the purposes of this discussion would like to consider the convalescent period as beginning about one week after the acute episode. A rather wide divergence of opinion exists as to the proper conduct of the early convalescent period, ranging from the very conservative method of insisting upon complete bed rest for at least two and sometimes three months, to the opposite extreme of sending the patient back to work the day after the occlusion has occurred.

Levine has recently published his experience and recommendations in a thought-provoking paper which appeared in *The Journal of the American Medical Association* for April 19 of this year. His series consisted of eighty-one patients who had suffered acute myocardial infarction and he had the majority of them out of bed and sitting in a chair within the first two days. They were lifted or helped into a wheelchair and pains were taken to avoid any pressure in the popliteal spaces. He permitted the patient to sit up in a chair until fatigued and urged him to remain out of bed as much of the day as possible without causing discomfort. This amounted to one or two hours the first day and gradually increased until, at the end of one week, the patient was in the chair the greater portion of the day. Contraindications to the "armchair" treatment were: (1) continuing state of shock, (2) marked debility, and (3) concomitant cerebrovascular accident. Such signs or symptoms as high temperature, severe pain, friction rub, diastolic gallop rhythm, heart block, arrhythmias in general, and need for oxygen were not considered contraindications to sitting in a chair. The patient was encouraged to feed himself and was permitted a bedside commode or toilet privileges. The patients were permitted to walk a few steps at the end of the third week and usually were out of the hospital in four weeks. Anticoagulant therapy was used in all but nine patients. The end results in this series compared favorably with patients treated by the more conventional methods; complications were no more frequent, and the mortality rate no higher.

Every clinician has his own favorite way of treating coronary occlusion and, for my part, I prefer to keep the patient at bed rest for four to six weeks depending upon the severity of the attack. One can be guided by the general condition of the patient, the regressive changes in the electrocardiogram, and the improvement in the sedimentation rate. These two laboratory procedures are best followed at weekly intervals. I would prefer that the patient did not feed himself for the first week but have no objection to the use of a bedside commode as this is frequently preferable to a bed pan. The chief concern during this early stage is the possibility of cardiac rupture. White reported such an occurrence in 3.7 per cent of 270 cases following fresh infarction at Massachusetts General Hospital treated in the conventional manner and in 73 per cent of twenty-two psychotic patients who were difficult to control. Rupture is most apt to occur on the fourth or fifth day and is relatively rare after the tenth to twelfth day. The patient should be encouraged to keep the back rest rolled well up and even at night should sleep with his head fairly high. Leg exercises are prescribed after the first week and the patient is turned on his abdomen with a pillow under the hips for a period of fifteen or twenty minutes twice daily.

If the sedimentation rate has dropped nearly to normal and the electrocardiogram has shown definite improvement at the end of the fourth week the patient is permitted to sit in a chair for fifteen minutes morning and afternoon increasing this by fifteen minutes each day until he is sitting up two hours twice daily. If the clinical evidence points to a more severe infarct with slow healing the patient is kept in bed for the full six weeks. After he is able to sit up for two hours twice daily without fatigue he is permitted to take a few steps, increasing both the walking and sitting up daily. After one month of this he should be up and around full time without fatigue and stair climbing may be attempted. The patient who has suffered a coronary occlusion should ordinarily plan on a convalescent period of at least three months before attempting to return to work. Not infrequently it may be advisable to spend the last few weeks of this period away from home at some vacation spot, removed from the temptation of getting back to work or business prematurely.

Diet.—The whole question of diet in patients with coronary disease is at present the object of much controversy and a great deal of study. Until the exact role of cholesterol metabolism can be accurately determined it would be well to place the patient on a relatively low cholesterol diet avoiding particularly egg yolk, butter, cream, and cheese. It is extremely important to restrict the caloric intake in the obese patient. There is no need to restrict salt unless there is a complicating hypertension or congestive failure. The advisability of using heparin and dicumarol in the early stages of the treatment is outside the scope of this paper but if dicumarol has been started during the acute stage it should be continued until the patient becomes ambulatory. In certain selected cases it may be advisable to continue anticoagulant therapy for months or years after the patient returns to normal activity. In my opinion some one of the vasodilators is indicated routinely and should be continued for an indefinite period. Choline, methionine, and inositol have been recommended for patients who have suffered coronary occlusion, the purpose being to improve lipid metabolism and thus prevent progression of the atherosclerotic process. Some feel that lipotropic substances have the ability to de-cholesterolize the arteries but as yet no definite proof has been adduced to demonstrate that such reversing of the process is actually possible. In some instances where severe and intractable angina has followed coronary occlusion, depression of thyroid activity by means of propylthiouracil or I^{131} have been employed with considerable benefit. In my own opinion this is an irrational approach and I am not sure it is justified. Some of the recent work with relatively small doses of heparin appears promising.

Tobacco.—Tobacco is known to be a very powerful vasoconstrictor and although many authorities permit patients with coronary disease to continue the use of tobacco in moderation, my own feeling is that it is definitely contraindicated. All of us can think of certain exceptional cases where the complete interdiction of tobacco might do more harm than good, but in the great majority of cases the continued use of tobacco can only interfere with the development of collateral circulation and augmentation of the coronary flow.

Alcohol.—Alcohol in relatively small doses (one ordinary cocktail or "shot" of whiskey) twice daily probably acts as a good vasodilator and may be recommended particularly in those persons who have been in the habit of using alcohol in the past. The excessive use of alcohol, however, is known to reduce the efficiency of the myocardium and should be discouraged.

Physical Activity.—The amount of physical exertion to be permitted during the period of convalescence will vary with each individual case and only very general rules can be laid down. Walking is probably the best exercise as both speed and distance can be regulated to suit the individual. The walking should be on level ground and hill climbing should be avoided during this stage. It goes without saying that anything as strenuous as lawn mowing and snow shoveling is distinctly contraindicated. The question of resumption of sexual activity should be faced squarely by the attending physician although the patient himself may be somewhat reluctant to broach the subject. By exercising a moderate degree of restraint and ordinary common sense most men may be permitted to resume marital relations during the latter part of the convalescent period, that is, during the third month.

The Future.—Before the patient returns to work the physician should take time to sit down with him and talk over whatever modifications are going to be necessary in his future living habits. Whether the patient be a man or a woman the question of returning to the former occupation is of paramount importance. In some instances a gradual return to the former job, possibly with certain modifications, may be entirely feasible. However, in many instances, rather profound alterations in the working conditions may have to be achieved and in some cases a complete change in the type of work may have to be effected. Rarely is it advisable to force a patient to give up work altogether. The keynote of this conference should be hope and encouragement and it is good psychology to cite a number of cases in which patients have lived many years and led active and useful lives following an attack of myocardial infarction. The patient should be made to realize that his future depends to a considerable extent on the manner in which he conducts himself and that he has it within his power to assure for himself, to a very considerable extent, many years of good health and good living. Worry and fear should be dispelled as completely as possible. Many doctors experience one or more coronary occlusions and if you look around you, you will find that most of these men are back in active practice and relatively symptom-free. True, a final attack may be waiting for them at the end of the road, but I can think of many lingering types of death and other more unpleasant methods of leaving this earthly life than via coronary thrombosis.

In the words of Dr. Thayer, one of Baltimore's most famous internists, referring primarily to angina pectoris, "The attacks, though distressing, may often be quickly relieved, and in the end, the patient may pass from the turmoil of life to the peace of that which we call death, in the twinkling of an eye, without a pang, without a movement, without a care."

THE SOCIALIST-COMMUNIST IDEA

As a teacher in public schools, I find that the socialist-communist idea of taking "from each according to his ability," and giving "to each according to his need" is now generally accepted without question by most of our pupils. In an effort to explain the fallacy in this theory, I sometimes try this approach with my pupils:

When one of the brighter or harder-working pupils makes a grade of 95 on a test, I suggest that I take away 20 points and give them to a student who has made only 55 points on his test. Thus each would contribute according to his ability and—since both would have a passing mark—each would receive according to his need. After I have juggled the grades of all the other pupils in this fashion, the result is usually a "common ownership" grade of between 75 and 80—the minimum needed for passing, or for survival. Then I speculate with the pupils as to the probable results if I actually used the socialistic theory for grading papers.

First, the highly productive pupils—and they are always a minority in school as well as in life—would soon lose all incentive for producing. Why strive to make a high grade if part of it is taken from you by "authority" and given to someone else?

Second, the less productive pupils—a majority in school or elsewhere—would, for a time, be relieved of the necessity to study or to produce. This socialist-communist system would continue until the high producers had sunk—or had been driven down—to the level of the low producers. At that point, in order for anyone to survive, the "authority" would have no alternative but to begin a system of compulsory labor and punishments against even the low producers. They, of course, would then complain bitterly, but without understanding.

Finally I return the discussion to the ideas of freedom and enterprise—the market economy—where each person has freedom of choice, and is responsible for his own decisions and welfare.

Gratifyingly enough, most of my pupils then understand what I mean when I explain that socialism—even in democracy—will eventually result in a living-death for all except the "authorities" and a few of their favorite lackeys.

A letter from Thomas J. Shelly, teacher of Economics and History, Yonkers High School, Linden and Poplar Streets, Yonkers 2, New York.—January 20, 1951.

REVIEW OF POLIOMYELITIS AT ANCKER HOSPITAL FROM 1931 TO 1951

FRANK G. HEDENSTROM, M.D.
Saint Paul, Minnesota

POLIOMYELITIS is a disease so variable in development and manifestations that for purpose of clarification it may be helpful to outline the clinical features. Table I demonstrates the three phases or stages commonly associated with the acute disease.

TABLE I. CLINICAL CLASSIFICATION OF POLIOMYELITIS

Abortive Type Systemic Phase	Transition Phase	Nonparalytic Type Preparalytic Phase		Paralytic Type
30% present Prodromal symptoms 1-2 days Fever Headache Angina Nausea Vomiting Constipation Diarrhea 80% recover	1-4 days Improvement 20% progress	1-5 days Sudden onset Persistent headache Fever Flushed cheeks Circumoral pallor Anxious expression Pulse rapid out of proportion to fever Rigid neck and back Positive dermographia Hyperesthesia Muscle tenderness Positive kernig Tremor of hands Muscle twitching Reflex changes Spinal fluid—clear to ground glass—cell increase Neutrophiles predominate early—Lymphocytes later Increase of globulin	50-70% Recover 30-50% Progress to Paralysis	Spinal Bulbar Respiratory Circulatory Encephalitic

The abortive type, the systemic phase and the prodromal stage are synonymous. About 30 to 35 per cent of patients present a prodromal history, featured by fever, headache, angina, nausea, vomiting, constipation, or diarrhea. The duration is brief—of one or two days. The occurrence of these symptoms in a large number of persons exposed to poliomyelitis during an epidemic accounts for the statement "that most people have polio unaware of having had an abortive attack." Approximately 80 per cent recover from the prodromal stage, and 20 per cent progress, either through the transition phase, manifested by a temporary feeling of improvement, or directly to the preparalytic phase, which if arrested is known as the nonparalytic type.

The preparalytic phase or stage may last one day or may extend to five or seven days before paralysis ensues. The patient by no means need present all of the symptoms, though commonly may develop a sudden intractable headache that does not respond to analgesics, also neck and back stiffness and a positive Kernig's sign, or so-called "muscle spasm." This picture is sufficient indication for a spinal puncture, which usually reveals a cell count above 10. However, poliomyelitis may occur in the presence of a normal cell count. A predominance of neutrophiles in the spinal fluid usually means the case has been detected early. In the course of a few days, the lymphocytes tend to predominate. About 50 to 70 per cent of the patients recover and are then classified as nonparalytic in type. Thirty to 50 per cent are called preparalytic and progress to the paralytic stage.

The paralytic type may be classified as the spinal type involving the arms, legs, back, and abdomen. The bulbar type which may involve the cranial nerve nuclei of the third, fifth, sixth, seventh, and eighth nerves has a good prognosis. More frequently and more grave is the involvement of the tenth cranial nerve, resulting in paralysis of the palate, pharynx, and vocal cords. Involvement of the respiratory center and the circulatory center is very serious, and they are almost always associated with cranial nerve paralysis. The polioencephalitis occurs commonly with the bulbar type. The cerebellar type with an ataxic gait is not common.

Presidential address before the Ramsey County Medical Society, Saint Paul, Minnesota, January 28, 1952.

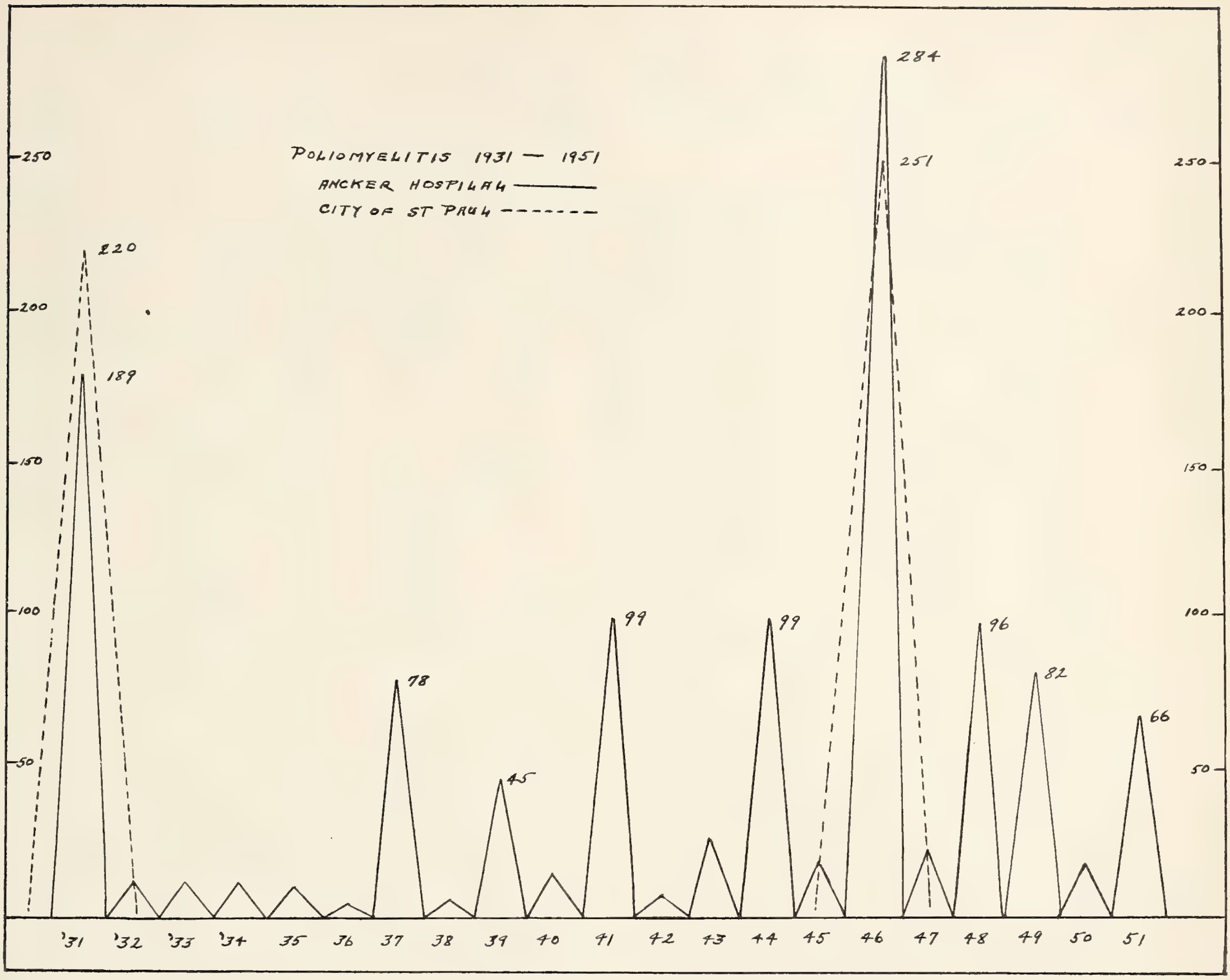

Fig. 1.

The incidence of poliomyelitis in Saint Paul during the decade prior to 1930 was low. Probably many cases diagnosed as meningismus during this period were in reality nonparalytic poliomyelitis.

Figure 1 illustrates the incidence of poliomyelitis at Ancker Hospital from 1931 to 1951, with a high level of 189 cases admitted to the hospital during 1931. During this same year there were 220 cases reported in the City of Saint Paul, which at that time had a population of 270,000; that is .08 per cent or almost one case per 1,000 population. During the next five years the incidence was low. Beginning with 1937, the increase of poliomyelitis occurred almost biennially, attaining a very high level of 284 cases admitted to Ancker Hospital in 1946, followed by a gradual decline to sixty-six cases in 1951.

During 1946 there were actually 316 cases cared for at Ancker; however, thirty-two of these cases were transfers from the University Hospital and were, therefore, not included in the study. There were 251 cases reported from within the city, the population being about 300,000, with an incidence of .08 per cent or practically one case per 1,000 persons. It is interesting that both 1931 and 1946 experienced major epidemics with an equal attack rate of almost one person per 1,000 population. Also in 1931, thirty-one reported city cases (14 per cent) were not hospitalized but cared for in the homes. On the other hand, in 1946 there were thirty-three more cases admitted to the hospital than reported within the city, with no patients cared for in their homes.

Table II shows the yearly case incidence with a total of 1,176 cases. The second column shows the yearly incidence of paralytic cases, with a total number of 435 paralytics (37 per cent of the total group). The third column shows the yearly number of bulbar cases, with a total of 154 bulbars (13 per cent of the total group). There were sixty-five total deaths (5.5 per cent death rate of the entire group).

TABLE II. POLIOMYELITIS, ANCKER HOSPITAL, 1931-1951

Year	Total Cases	Paralytic		Bulbar		Deaths	
1931	189	56	34.0%	25	13.2%	14	7.4%
1932	11	4	36.3%	1	9.0%	1	9.0%
1933	11	6	54.5%	1	9.0%	0	
1934	10	4	40.0%	1	10.0%	1	10.0%
1935	9	2	22.0%	0		0	
1936	1	1	100.0%	0		0	
1937	78	22	28.2%	7	8.9%	2	2.5%
1938	3	1	33.3%	0		0	
1939	45	22	47.7%	3	6.6%	3	6.6%
1940	12	4	33.3%	0		0	
1941	99	35	36.2%	7	7.0%	4	4.0%
1942	5	4	80.0%	0		0	
1943	24	8	33.3%	2	4.1%	0	
1944	99	36	36.3%	12	12.1%	3	3.3%
1945	15	5	33.3%	3	20.0%	0	
1946	284	107	34.1%	58	13.3%	20	7.0%
1947	20	12	55.5%	1	5.0%	0	
1948	96	38	40.1%	4	4.1%	3	3.1%
1949	82	33	40.2%	21	25.6%	9	10.9%
1950	17	6	40.0%	1	5.9%	1	5.9%
1951	66	29	43.9%	7	10.6%	5	7.6%
	1176	435	37.0%	154	13.0%	65	5.5%

The correlation of the bulbar cases in 1931 and 1946 is noteworthy. There occurred twenty-five (13 per cent) bulbars in 1931, with a 48 per cent death rate, and fifty-eight (13 per cent) bulbars in 1946, with a 34.5 per cent death rate. Ancker Hospital operated without a respirator until September 17, 1931, when the first Drinker respirator was acquired. This fact in all probability accounts for the high 1931 bulbar respiratory mortality. A second respirator was acquired in 1933 and a third in 1938. During the 1946 epidemic twelve respirators were in operation, probably a factor in the lower mortality.

The most singular feature of the 1931 epidemic was the high incidence of severe meningeal symptoms characterized by marked neck and back rigidity with opisthotonos. Ordinarily high cell counts are not common, but in 1931 we observed a number of counts up to 1,500 cells.

Following the work of Aycock and Luther, convalescent serum was used in 1931. It was impossible to use control cases because the public demanded the serum produced at the University of Minnesota. Convalescent serum was commonly administered in doses of 40 cc. intramuscularly and continued to be used until 1937 when it was generally conceded to be of little value. The identical incidence of paralytics and death rates in 1931, when convalescent serum was used routinely, and 1946, when no convalescent serum was used, corroborated previous opinion that convalescent serum is of no value.

The physical care from 1931 through 1939 was patterned from Durand Hospital, Chicago, Illinois, where Miss Birgit Tofte, supervisor of contagion, formerly worked under Dr. Weaver and Dr. Parks. All patients were placed on flat polio beds. Chicken wire basket-like splints lined with cotton were used to maintain warmth, protect the feet from the weight of the bed clothes, and to control deformity. Hot wet towels were wrung out and applied to the extremities to relieve painful muscles. When able to be moved, the patients were given hot saline tub baths and hammock baths. The bulbar patients were treated with postural drainage, elevating the foot of the bed, and suction of the pooled throat secretions. Oral feeding was withheld and intravenous fluids were used to prevent dehydration until the secretion was controlled. Early physiotherapy, that is, passive manipulation, was not used. At the end of three or four weeks, the paralytics were transferred to Gillette Hospital for physiotherapy and orthopedic care. By 1940, Ancker Hospital adopted the hot packs and early physiotherapy sponsored by Sister Elizabeth Kenny. This has since become established procedure on the poliomyelitis service.

By 1944 and 1946 there occurred an increasing amount of radio and newspaper publicity; even polio pamphlets were distributed from house to house. This, in all probability, contributed or induced an attitude of fright on the part of the laity not observed in previous epidemics. Patients came

(Continued on Page 852)

IMMUNIZATION DURING THE FIRST YEAR

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PREVENTION of disease is as important a function of medical practice as is the treatment of disease. Many infectious diseases can be prevented by proper immunization procedures. Since children are susceptible to many of these diseases during the first year of life, it would appear wise to institute effective prophylactic measures at the earliest possible age.

No immunization schedule yet proposed has been universally accepted, and no schedule exists that should not be re-evaluated every few years in the light of new knowledge.

Before I discuss the table of immunization that was approved in 1951 by the Minnesota State Medical Association and distributed by the Minnesota Department of Health, it might be wise to make some comments about methods of administration and some contraindications to the procedures.

Autoclaved needles and syringes preferably should be used. If this is not possible, then such equipment should be boiled for at least ten minutes. The skin of the infant should always be carefully cleansed at the site of the injection. Likewise, the rubber stopper of the vial containing the antigen should be disinfected.

Preparations that contain alum or aluminum hydroxide should be injected intramuscularly. This greatly reduces the incidence of sterile abscesses after immunization. Fluid toxoids and vaccines that are suspended in saline solution can and should be administered subcutaneously.

Infants should not be given immunizing injections when they have any acute infectious disease. Current opinion suggests that it is wise to omit routine administration of a wide variety of antigens whenever acute anterior poliomyelitis is present in the community. The actual necessity for this step has not been proved as yet. The Committee on Immunization and Therapeutic Procedures for Acute Infectious Diseases of the American Academy of Pediatrics in a recent report[2] stated: "The information (published and unpublished) which is available at present is insufficient to conclude whether or not injections of vaccine and/or toxoid and also possibly smallpox vaccination predispose to paralytic poliomyelitis . . . . It is recommended that immunization procedures be not discontinued on a seasonal basis in anticipation of an epidemic. When, however, an outbreak of poliomyelitis of considerable proportion occurs in one's community, then elective immunization procedures in individuals over the age of six months should be deferred." If outbreaks of any of the diseases against which prophylactic preparations are available, such as diphtheria, coexist with an outbreak of poliomyelitis, then immunization procedures cease to be elective and should be given. The committee further stated, " 'Wound boosters' of tetanus toxoid following wounding should never be deferred even in contacts to poliomyelitis cases. . . . This committee has advised that primary immunization against diphtheria, pertussis and tetanus be commenced with combined antigens at three months of age. It is, therefore, generally possible to finish the job and also to include smallpox vaccination before the age of six months. Because of the rarity of infantile paralysis in infants under six months of age, it is recommended that these procedures be followed regardless of the presence of an outbreak of poliomyelitis in the community." Similar recommendations recently have been made at a conference sponsored by the United States Public Health Service and participated in by the National Foundation for Infantile Paralysis.[4]

When immunization is planned for a child who has a history of previous febrile convulsions, it is perhaps best to give fractional doses of antigen, beginning with 0.1 cc.[1] Some physicians routinely administer acetylsalicylic acid in a dose of 1 grain (65 mg.) per year of age every four hours for a day or two after immunizing injections.

It is always wise to question the mother in regard to the occurrence of any febrile, convulsive, local or other reaction to the previous injection when the child is brought in for the second and subsequent injections. If a convulsion or severe

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Part of a round-table discussion at the meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

From the Section on Pediatrics, Mayo Clinic, Rochester, Minnesota.

reaction has occurred, subsequent injections should be postponed for at least a year. Then I would favor omission of the pertussis antigen. A number of cases have been reported[3] in which an encephalitic type of reaction followed an injection of pertussis antigen in twenty minutes to seventy-two hours. In some of these infants the reaction, manifested by fever, drowsiness and convulsions, was observed after the first injection. Only six of the fifteen infants observed by Byers and Moll[3] made a satisfactory recovery after such reactions.

Only one such reaction has been observed among the children immunized in Rochester. However, children have been seen at the Mayo Clinic who have a neurologic disturbance that apparently resulted from the administration of pertussis vaccine elsewhere. Instances of this type of neurologic reaction have been reported following the use of plain pertussis vaccine or its combination with diphtheria and tetanus toxoids in either fluid or alum-precipitated form. No single brand or type of vaccine apparently is implicated more than others. There is some question whether recently manufactured and "unaged" vaccine may have been responsible for the reactions.[3]

The interval betwen injections of the combined immunization preparation (alum-precipitated diphtheria toxoid and tetanus toxoid with pertussis vaccine) should be not less than a month and probably not more than three months. If, however, for any reason it is necessary to postpone the second or third injections for as long as six months, there probably will be no interference with the development of an adequate final immunity.

Because of the danger of generalized vaccinia, smallpox vaccination should not be done if the child has eczema.

TABLE I. SUGGESTED IMMUNIZATION PROCEDURES

Disease	Suggested Procedure for the Infant and Preschool Child
Smallpox	Vaccinate between 3 and 12 months of age. This may be done when the last dose of diphtheria toxoid is administered.
Pertussis Diphtheria } Combined Tetanus	Use alum-precipitated diphtheria and tetanus toxoids, plus pertussis vaccine. Start at 3 months of age. Give 3 doses at intervals of one month. Give a booster dose at 1½ to 2 years of age.
Pertussis	Use pertussis vaccine. Give 3 doses at intervals of one month, beginning at 3 or 4 months of age. Give a booster dose at 1½ to 2 years of age and again at 3½ years of age.
Diphtheria	Use alum-precipitated toxoid. Give 2 doses at monthly intervals beginning anytime between 3 months and 1 year of age. Preferably start at 3 to 6 months of age. When fluid toxoid is used, give 3 doses at monthly intervals. In private practice do a Schick test six months later.
Tetanus	Use alum-precipitated toxoid. Give 2 doses at intervals of one month, starting between 3 months and 1 year of age. Give a booster dose at 1½ to 2 years of age.

Table I lists the recommended doses and time of administration for immunizations during infancy and the preschool period as given in the currently available table of immunization of the Minnesota State Medical Association.

It is hoped that in the future a satisfactory method will be found to ensure that each child or his parents know what immunization procedures he has had.

References

1. American Academy of Pediatrics: Report of the Committee on Immunization and Therapeutic Procedures for Acute Infectious Diseases of the American Academy of Pediatrics. Part I, pp. 1-10. Evanston, Illinois: American Academy of Pediatrics, 1951.
2. American Academy of Pediatrics Newsletter: Supplemental Report of the Committee on Immunization and Therapeutic Procedures for Acute Infectious Diseases, pp. 3-4 (Mar.) 1952.
3. Byers, R. K., and Moll, F. C.: Encephalopathies following prophylactic pertussis vaccine. Pediatrics, 1:437-456 (Apr.) 1948.
4. Editorial: Relationship between inoculations and poliomyelitis. J.A.M.A., 149:170 (May 10) 1952.

"HOW SICK IS SOCIALIZED MEDICINE?"

This is the title of an excellent article by the noted economist, Melchior Palyi, which appeared in the June 16 issue of *The Freeman* magazine.

After surveying Britain's national health scheme, Mr. Palyi found that its results were the depressing opposite of its glowing promises.

He found, for example, that less than three years after the program became law in Britain, 553,577 people were on the waiting list for hospital beds; many of the mentally deficient and the helpless aged are left without institutional care to shift for themselves; the costs of governmentalized medicine have almost trebled in four years to more than 10 per cent of the over-inflated national budget; the something-for-nothing Utopia, advertised world-wide, is now in a slow retreat; the people actually pay for what they get "free"; socialism or no socialism, "first class" treatment is open primarily to those who can afford to pay; fewer than 20,000 general practitioners carry the main burden of medical care for more than 45,000,000 people, and there is no progress at all in industrial medicine.

Mr. Palyi's article is out in reprint form. Copies at $7 a hundred or $60 a thousand may be obtained from *The Freeman,* Dept. PB, 240 Madison Ave., New York 16, N. Y.—*A.M.A. Secretary's Letter,* August 18, 1952.

PRACTICAL NURSES AND HOMEMAKERS FOR RURAL MINNESOTA

KATHARINE DENSFORD, R.N., J. O. CHRISTIANSON, D.Sc., and
EUGENIA TAYLOR, R.N.
University of Minnesota

THE first of April this year a group of young women found their places as licensed practical nurses assisting in the health care of the people of rural Minnesota. These young women are graduates of the second class of the program combining preparation in practical nursing and home management which is offered jointly by the School of Agriculture and School of Nursing of the University of Minnesota.

The University of Minnesota School of Nursing and the School of Agriculture, functioning in a state predominantly rural, have special interest in meeting the health needs of rural communities. For many years, both schools have considered plans for meeting the continued need for nonprofessional nursing care in these areas and in July, 1949, were able to offer jointly the first program in the United States which combined preparation in home management and practical nursing.

The School of Nursing had previously established (1947) a four-quarter program in practical nursing. The School of Agriculture had for some time offered a program in home management, including home nursing.

Following many conferences, a special joint committee of the faculties of both schools worked out a new six-quarter program in home management and practical nursing which, after approval by both faculties, was initiated on a trial basis in the fall quarter, 1949.

Purpose.—The purpose is dual, to prepare young people as practical nurses and as homemakers. Significantly, the program aims at supplementing professional nursing and home care at a point of tremendous need, the rural community. Specifically, it aims at preparing practical nurses who are qualified to function in rural health programs with special emphasis upon home management. Graduates of the program are equipped to assist in the care of the ill in hospitals, in other similar institutions, in health agencies, and in homes. They are also fitted for intelligent active participation in community living.

Advisory Committees.—Two types of advisory committees function in the program. The first of these is a state committee. Its members are representatives of many interested groups in the state as well as of the geographical areas of the state. Current membership includes the following representatives: Dr. J. O. Christianson, superintendent of the School of Agriculture; Miss Katharine Densford, director, School of Nursing; Miss Margery Low, instructor, School of Nursing; Miss Eugenia Taylor, instructor, School of Nursing; Miss Ella Rose, professor, School of Home Economics; Miss Rena Boyle, School of Nursing; Miss Dagmar Johnson, advisory public health nurse, District 8, Little Falls; Miss Beth Proper, West Concord, Grange Youth; Mrs. Lewis Minion, Bingham Lake, Farm Bureau; Miss Aura Keever, supervisor of Home Economics Education, State Department of Education, St. Paul; Miss Dorothy Simmons, State Home Demonstration Leader; Miss Adeline Marschall, Minnesota Licensed Practical Nurses Association; Mrs. Myron Clark, Stewartville, School of Agriculture Alumnae; Miss Madell Motsiff, Superintendent, Wesley Hospital, Wadena; Miss Amy Gunderson, Superintendent, Swift County-Benson Hospital, Benson; Mrs. Clinton Haroldson, Renville, Farmers' Union; Mrs. N. E. Quam, Ebenezer Home for Aged, Minneapolis.

The functions of this state advisory committee are to understand the aims of the program, to aid in guiding and strengthening the program, to interpret the program to the public, and to assist on a statewide basis in developing clinical facilities.

The second type of advisory committee is local. Its membership includes representatives from the local hospital, medical staff, trustees of the hospital, public health agencies, farm groups, local schools and colleges, and other interested groups. Its functions stem from the purposes of the state

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Miss Densford is director of the School of Nursing; Dr. Christianson is superintendent of the School of Agriculture and director of Agricultural Short Courses, and Miss Taylor is an instructor in the School of Nursing, University of Minnesota.

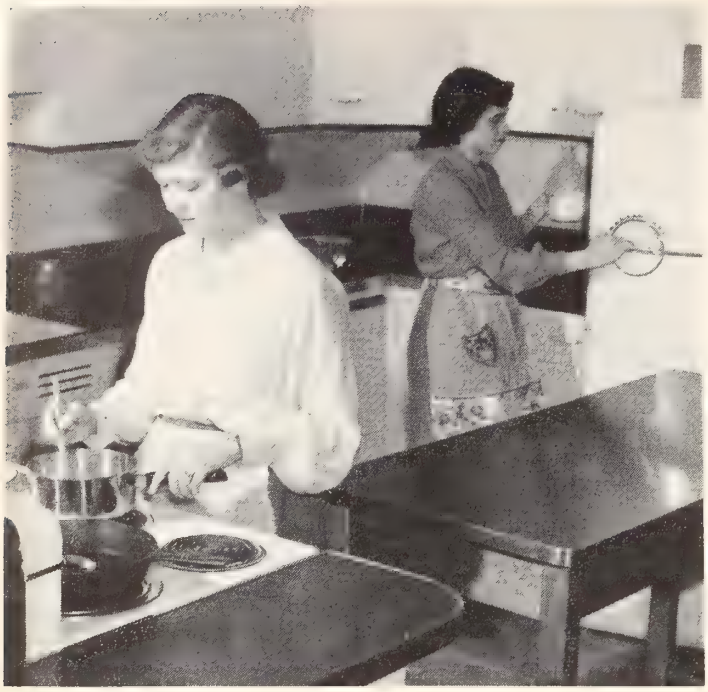

Fig. 1. Practice in meal preparation.

committee and are of special significance since it is the local advisory committee which provides community leadership for developing each center for student experience. The community involved in providing the rural experience for the students actually participates in the planning of the program. By so doing it stimulates as well as demonstrates the community's participation in meeeting its own health and social needs.

In the summer of 1951, the advisory committees of Benson, under the chairmanship of Mrs. Don Perrzo, and of Wadena, with Mrs. James Harding, New York Mills, as chairman, did outstanding work in planning and arranging for students to become a part of the communities in which they had their rural experience. This was accomplished by taking the students on tours of nearby towns, of industries and of other points of interest and by inviting them to participate in social events and local organization activities. Frequently, also the students were guests in individual homes.

Faculty.—Already well established on a statewide basis was a plan of rural nursing for professional nursing students directed and co-ordinated by a faculty member of the University of Minnesota School of Nursing. This co-ordinator was therefore utilized for developing the rural aspects of the new home management and practical nursing curriculum. In addition to this co-ordinator, a special well-qualified instructor was appointed to carry major responsibility for instruction, including supervised practice of students in the actual care of patients. Also, each rural hospital in a rural community to which the students are assigned for a quarter of rural nursing experience provides a full-time qualified instructor. The university instructor accompanies the students to the rural communities. She works closely with each local instructor in teaching and supervising the student and in planning for student participation in community activities.

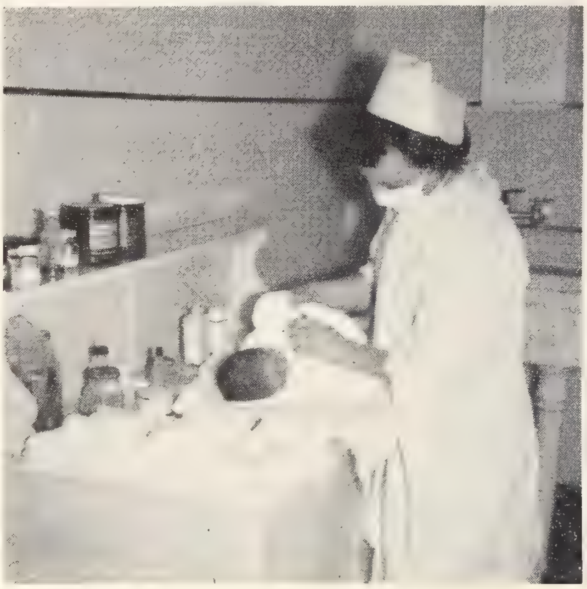

Fig. 2. Caring for a new baby in a rural hospital.

Curriculum.—The curriculum is so planned as to utilize to best advantage the facilities of both schools to accomplish the dual purpose. Thus, during the first quarter, the student attends such classes as elementary bacteriology, psychology, physiology, home management, and science applied to the home. Through campus activities, including the student practical nurse club, she becomes acquainted with the possibilities of her role as a future practical nurse, homemaker and citizen. In the second quarter the student continues courses in the home economics field, nutrition, meal preparation and child care. In the latter subject, the student has actual experience in observing and caring for children in selected homes near campus. Also in the second quarter the student begins classes in practical nursing with carefully selected and supervised experience in the University Hospitals. Here, too, she learns to function effectively as a member of the nursing team. The third quarter is devoted full time to classes and supervised experience in care of

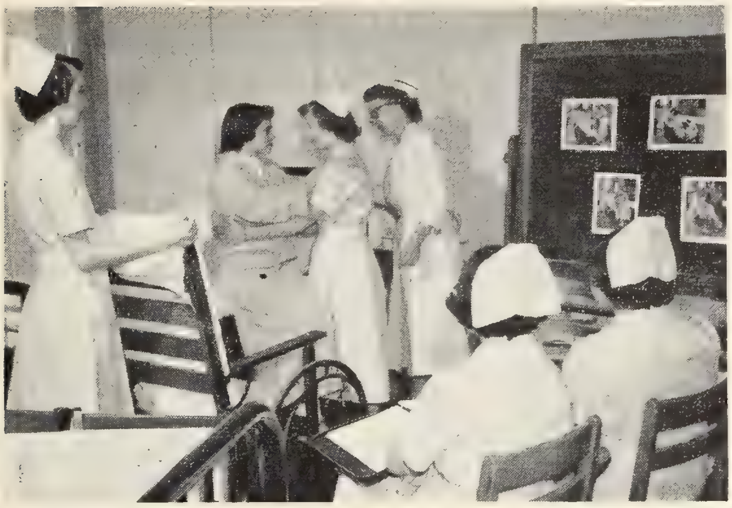

Fig. 3. Nursing instruction in the care of the patient.

general adult patients and children in the University Hospitals. The fourth quarter is spent in a selected typical rural community which has a thirty-five to fifty-bed general hospital and a well-organized public health nursing service. During this time the student continues with practical nursing classes and clinical experiences particularly in the care of the mother and newborn and in the care of the general medical and surgical patient found in a small general hospital. The student accompanies the public health nurse on visits whereby she becomes acquainted with the methods and facilities for meeting health needs in a rural community. By field trips and by actual participation in various community activities she acquires a further understanding of the practical nurse's role in community life and rural health. The student usually has opportunity to go into the home of a new mother and baby for whom she has cared in the hospital and with the supervision of the public health nurse to assist the mother with the home care.

The fifth quarter the student returns to classes on both campuses. At the University Hospitals she completes her clinical experience in care of patients with special conditions, care of the sick child, assisting in the team care of the more acutely ill patient. At a selected nursing home she cares, during a two-week period, for geriatric patients and assists in planning for the recreational and other needs of the elderly person. In the sixth and last quarter of the program, the student carries general education classes, rural sociology, rural sanitation, advanced home economics, Red Cross first aid, and electives such as business courses and music.

Selection.—Students must have desirable personal qualifications, be at least seventeen years of age and preferably high school graduates. Those who are not high school graduates may be admitted on an individual basis and may require more time to complete the course. All students must pass an entrance Health Service examination.

Maintenance.—Throughout this program the student is responsible for her own maintenance as are other university students. She may live in a dormitory while on campus and in an approved home while in the rural area, providing her own maintenance makes possible clinical assignment of the student according to her educational needs. The hours of clinical experience are supervised to insure the student optimum learning and are scheduled within the regular school day and week. This schedule affords the student free time to seek part-time employment to earn part of her expenses, as do other students on campus, or to participate in recreational, social and educational activities. This type of planning also contributes to the student's development of independence, maturity, and ability to function in community living which should aid her adjustment in future positions.

Uniforms.—The student uniform is a gay yellow with matching cap, worn with white apron, stockings and white shoes.

Rural Areas.—The rural areas which have participated in the program in the initial stages are Wadena, Stillwater, Glencoe and Benson. Wesley Hospital and the community of Wadena and Swift County-Benson Hospital and Benson are being utilized in the program at present. Additional areas will be used as the enrollment warrants.

Employment Opportunities.—Upon completion of this accredited program, these young women are eligible to take the state board examination for licensure as practical nurses and may seek employment in homes, hospitals and other health agencies. Of the first group to graduate all except two were employed in hospitals, with a majority in rural hospitals, including Bemidji, Crookston, Mankato, Wadena, Blue Earth, Slayton, and Worthington. One is doing private nursing in homes, and one has married but is con-

(Continued on Page 871)

GENERAL ASPECTS OF ECZEMA

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ECZEMA is a hypersensitivity or hyperirritability of the skin either inherited or acquired. It consists of numerous components which express themselves on the skin as erythema, papules, vesicles, weeping, crusting, scaling and thickening with frequent paroxysms of severe pruritus.

Nearly all eczematous eruptions are internal in origin but some extrinsic factors may produce aggravations. In considering the etiology of eczema the following factors are to be considered:

1. The hereditary predisposition is present in nearly 50 per cent of cases either in the form of eczema or another allergic diathesis such as hay fever, vasomotor rhinitis, asthma, urticaria or migraine.

2. An individual born with a dry or ichthyotic skin is more prone to develop irritation especially from soap and water and in cold weather. The eruption is accentuated about the posterior aspect of the arms and anterior surface of the legs where large scaly flakes of skin are evident. Those showing follicular hyperkeratosis about the elbow and knees (nutmeg-grater appearance) seem to be helped by large doses of Vitamin A (100 to 200 thousand units per day). Limited bathing of the trunk and extremities using super-fatted soaps and frequent applications of vegetable oils or hydrophilic petrolatum are beneficial.

3. Orange red, yellowish, greasy scaled eruptions which develop on the so-called seborrheic areas (scalp, face, neck, ears, center of chest, back and perineum) are evidence of seborrheic eczema. These individuals are prone to have oily skin with a shiny nose and numerous comedones about the face, back and chest. In infants the eruptions start in the scalp, face and diaper area. However, it can become generalized. The child is usually overweight and is pale and pasty in appearance. The underlying factors in the development of seborrheic eczema are fatigue, nervous tension and excessive intake of fatty foods, chocolate and vegetable oils. The skin frequently is aggravated by bacterial invasion.

4. Certain eczematoid eruptions have their origin around bacterial infections such as furuncles, impetigo, draining purulent sinus tracts and intertriginous fissures. The skin becomes sensitized to the bacterial products and the eruption is frequently abetted by an irritation from locally applied medicaments. The dermatitis is erythematous with easily removed crusts under which either a serous or pustular discharge is present. The history of beginning about a localized pyogenic focus is indicative of this type. Another dermatosis of a less inflammatory nature may be the result of skin irritability from a fungus infection which is usually either interdigital or in other moist folds of the body. Absorption may also be hematogenous, producing vesicular or pustular "id" eruptions which have a predilection for the palms and soles but may become generalized. The diagnosis is made by the history, the presence of an eczematoid or vesicular eruption with evidence of a primary pyogenic or mycotic focus. Similar eruptions may result from the irritation and infection induced by scratching.

5. The effect of focal infection on cutaneous eruptions has been a controversial issue, the chief supporter having been Andrews[1]. Some recalcitrant pustular eruption of the palms and soles have been improved by removal of abscessed teeth or diseased tonsils and by alleviation of urinary tract infections. There is little doubt that any chronic infection which lowers an individual's reserve vitality is sufficient to keep an irritable skin in a state of unrest.

6. The allergic diathesis of chronic eczema is an important etiologic factor. Unfortunately skin tests are both unreliable and faulty except in inhalant sensitivities. A careful history eliciting periods of seasonal exacerbation, unusual contacts and recent ingestants, and the use of elimination diets are more profitable to the patient than hundreds of needle punctures.

In eczematoid processes believed to be allergic in origin it has been beneficial to place the individual in as ideal surroundings as possible; an

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From the Department of Dermatology, The Duluth Clinic, Duluth, Minnesota. Presented in the Symposium on Eczema at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

air conditioned room in the hospital or a bare uncarpeted room with all radiation sealed off and 40 per cent humidity. No contact with feathers, wool or silk is allowed and a diet eliminating the commonest allergens (chocolate, nuts, pork, eggs, sea foods, tomatoes, citrus fruits, wheat and milk) is provided. If there is no improvement in five days the elimination diets of Flood[4] or Rowe[8] are used.

7. Especially since the publications of Stokes[9] and Becker[2] the emotional or psychogenic factors as the principle underlying mechanism in eczema have received the attention of numerous investigators. Williams[11] found that in 33 patients with infantile eczema he was able to improve two thirds of them by bland therapy and directing his treatment to relieving the mother's anxiety and tension. Obermayer[7] performed projective tests (Rorschach, word association, etc.) and found evidence of compulsive obsessive characteristics and frequent hysterical trends in a fair number of patients with eczematoid eruptions. They also were prone to have internal hostility especially against themselves and were apt to bottle up their emotions.

Sternberg[10] found evidence of a normal functioning pituitary adrenocortical system in eczematous individuals but a failure of these persons to show the normal stress reaction following exposure to heat and humidity. Lobitz[6] has also found that these hypersensitive persons show an abnormal response to intradermal acetylcholine as indicated by an initial vasodilation followed by vasoconstriction.

It has been my opinion that environmental circumstances leading to frustration, anxiety and tension states have been the most important contributory factors. Prominent in this category have been adverse home situations such as living with in-laws, an alcoholic spouse, or carrying on two or three jobs. Emotional tension is also a large factor. For example, I have seen many aggravations occur during the exciting period of a regional basketball play-off when games are played several nights in sequence.

The increasing incidence of functional disease has been thought by many to be due to the rapid tempo of present day life, the trying circumstances of repeated wars, the world unrest and the constant striving to acquire material possessions. Studies at the University of Chicago[3] showed the incidence of neurodermatitis to be highest in the third decade, and that these patients' metabolic rates tended to be low but thyroid medication was ineffective. Other incidental findings in these persons with functional dermatoses are easy fatigability, increased irritability and cyclic personalities (easy elation to quick periods of depression). Frequently other functional diseases were found associated, such as gastric hypermotility, irritable bowel syndrome, migraine headache, functional low back pain and perennial vasomotor rhinitis. A great deal of unrest was evident even in early childhood; refusing to nap, somnambulism, profuse head sweating, awakening and crying without cause. Periods of greatest exacerbations have been the first 18 months of life, the initial school years, at the change to high school and the third decade with all its early struggles of employment and family responsibility. These individuals do not have the normal sense of fatigue and consequently are unaware of becoming exhausted. They are always hyperactive and hyperkinetic but also are extremely hypersensitive and become unduly upset over trivial things. They tend to be impatient, intolerant, and conscientious yet they have spells of dreaming and brooding. The Chicago group[5] utilizing social service investigators in 100 of these patients found as etiologic factors: family incompatibility 24 per cent; sexual maladjustment 20 per cent; living circumstances (in-laws, neighbors, etc.) 12 per cent; economic insecurity 8 per cent; excessive fatigue (long working hours, two jobs) 8 per cent and no apparent cause in 28 per cent.

Obviously, in the management of these individuals, attention must be drawn to eliciting the cause. This may take several interviews to allow the patient to ventilate his discomforts. A sympathetic and interested objectivity must be adopted towards him. It is important to try to have the patient gain insight into his illness by explanations in such simple terms as a "very sensitive and irritable skin," to be aware of "inside tightening up, feelings of inner excitability" and "getting mad inside." Secondly treatment directed to aiding the nervous exhaustion is important: a reduction in activity; a daily nap or midday relaxation aided by taking a generalized sunlight treatment. At first it may be necessary to utilize mild sedation in order to gain lessened tension and a comfortable sleep. Specific local therapy will be discussed later but wetpack applications which keep the patient rested and occupied are the most helpful in the acute stages.

Environmental factors in relationship to temperature and humidity have a large influence on skin eruptions. Excessive heat and humidity are prone to have an adverse effect on the seborrheic dermatoses and also the dyshidrotic eruption of the palms and soles. Miliaria is a frequent complication and is not relieved until a cooler and more restful surrounding is obtained. Dry skin is likewise aggravated by the heat and dryness of artificially heated houses during the cold months and gains benefit from increased moisture. All eczematoid processes seem to be aided by climates which do not have rapid barometric fluctuations as these are prone to induce pruritic exacerbations in sensitive skins.

References

1. Andrews, G. C.: Diseases of the Skin. Ed. 3, p 259. Philadelphia: W. B. Saunders Co., 1946.
2. Becker, S. W.: Dermatoses, associated with neurocirculatory instability. Arch. Dermat. & Syphil., 25:205, 1932.
3. Becker, S. W., and Obermayer, M. E.: Modern Dermatology and Syphilology. Ed. 1, p 152. Philadelphia: J. B. Lippincott Co., 1940.
4. Flood, J. M., and Perry, D. J.: Role of food allergy in eczematoid dermatitis. Arch. Dermat. & Syphil., 55:493 (Apr.) 1947.
5. Hielt, Elizabeth G. and Peterson, R. J.: Social and Emotional Factors in 100 Dermatology Patients. (M. A. Thesis) In Chicago Studies. University of Chicago, 1936.
6. Lobitz, W. C.: To be published.
7. Obermayer, M. E.: Correlation of emotional status and reactivity to cutaneous stimuli in functional dermatoses. Arch. Dermat. & Syphil., 65:291 (March) 1952.
8. Rowe, A. H.: Atopic dermatitis of the hands due to food allergies. Arch. Dermat. & Syphil., 54:683 (Dec.) 1946.
9. Stokes, J. H.: The effect on the skin of emotional and nervous states. Arch. Dermat. & Syphil., 22:803, 1930.
10. Sternberg, T. H., and Zimmerman, M.D.: Stress studies in the eczema-asthma-hay fever diathesis. Arch. Dermat. & Syphil., 65:392 (Apr.) 1952.
11. Williams, D. H.: Management of atopic dermatitis in children: control of maternal rejection factor. Arch. Dermat. & Syphil., 63:545 (May) 1951.

REVIEW OF POLIOMYELITIS AT ANCKER HOSPITAL FROM 1931 TO 1951

(Continued from Page 844)

directly to the receiving room for rule-out spinal punctures, whereas in 1931 suspect cases were first seen by personal physicians and referred to Ancker Hospital for rule-out study. There was observed a shift in the age group involved from a predominance of children affected in 1931 to a larger number of severe bulbar cases in young adults in 1946.

During 1946 there were no tracheotomies performed. Subsequently eight bulbar patients had tracheotomies performed, with four deaths (a 50 per cent mortality). This, of course, is too small a series to be of any value.

All through the series there were patients admitted as polio suspects who proved to have diseases of an entirely different nature. They were as follows: hysteria—4, epidemic meningitis—2, cerebral accident—1, mumps meningitis—1, lobar pneumonia with meningismus—2, infectious mononucleosis—1, cerebrospastic disease—2, infectious jaundice—1, acute rheumatic fever—3, gastroenteritis—3, nephritis—1, acute angina—4, dysmenorrhea—1, tertiary lues—1, migraine headache—2; that is, in all, twenty-nine cases (2.4 per cent) were diseases other than poliomyelitis.

Summary

1. Major epidemics occurred in 1931 and 1946 with an equal attack rate of .08 per cent or almost one person per 1000 population.

2. In 1931, 14 per cent of patients reported in the city were not hospitalized but were cared for in the homes, while in 1946 all patients were hospitalized, with 12 per cent of patients admitted from outside the city limits.

3. During 1931, convalescent serum was used on all patients; none was used in 1946, with an equal paralytic and mortality index, confirming previous experiences that convalescent serum is of no value.

4. The high 48 per cent bulbar respiratory death rate in 1931 with one available respirator, in contrast to the lower 34.5 per cent death rate in 1946 when twelve respirators were available, is significant.

5. The end results were the same during the first ten years when loose wire and cotton splints with hot baths were used compared to the last eleven years when hot packs and early physiotherapy were used. However, the Kenny method provided more comfort for the acutely ill person and is the method of choice.

THE EVALUATION OF FOOD ALLERGY IN THE CAUSE OF ECZEMA

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THE ROLE of allergy in its application to the field of eczematous dermatoses has become a controversial subject. The term allergy is a phenomenon which has many facets—but its original definition was to explain a reaction between sensitizing agents and specific antibodies in an animal organism. It has taken on a broader view, however, to encompass and express many altered cellular activities. At least the public has the conception that it is of major importance in most diseases of the skin. They frequently ask, "Is it my diet?" or "Is it something I am eating?"

It is a fact that many patients afflicted with chronic and recurrent eczema have an associated history of hay fever, asthma, or both, or have a high incidence of some in their family history. It could be deduced therefore that eczematous manifestations in these individuals is unquestionably due to the same atopic faults. There are, however, probably an equal number of eczematous individuals who lack any history of atopy in themselves or their family history.

An etiological and descriptive classification of the wide group of eczematous dermatoses has been presented by the previous essayist. It could be surmised that a given case of eczematous dermatitis which is not satisfied by the diagnostic criterion of being on a seborrheic or infectious basis would be candidates for an allergic work-up. Some would be satisfied by history and pattern to be due to epidermal irritants and therefore of contact extrinsic nature. This subject will be discussed by another essayist in this panel. The remaining groups that cannot be explained on these basis are likely to be either functional or allergic in cause; and these are difficult to discriminate morphologically. The functional type which may be due to a neuro-vascular dysfunction is usually responsive to dermatologic therapy. I would say, therefore, that the cases that are refractory to good dermatological therapy and continue to persist and repeatedly exacerbate at short intervals warrant an allergic study.

The offending reactive substances usually are of protein nature and may be of contact, airborne or alimentary in source. Skin tests have been the conventional diagnostic tool for their identification. The testing materials may be applied by contact patch tests, intradermal or scratch technique. An immediate whealing reaction is interpreted to be a significant indication for their ability to produce cellular reactions in other organs of the body in that respective individual.

In recent years, discriminating allergists and dermatologists have come to the conclusion that these methods have definite limitations and are apt to be fallacious. This is particularly true as regards the testing with ingestant food allergens. Their chief reasons for challenging its validity are:

1. That the whealing reaction produced by the intradermal injection of a food allergen is an urticarial reaction and does not represent the fundamental process of eczematoid dermatitis which is vesicular in nature.
2. That atopic individuals possess a highly reactive skin and that an abnormally high incidence of positive reactions will occur. The mere injection of diluents representing controls often causes whealing reaction. This makes interpretation of all reactions somewhat equivocal.
3. That attempts to reproduce or provoke the dermatitis by feeding the incriminated allergen during periods of freedom from the dermatitis have invariably failed.
4. That the summer seasonal subsidence of eczema, as is frequently true in atopic dermatitis, cannot be explained on dietary relationships.

Consequently, many therapists have abandoned skin testing as a method of evaluating the rôle of ingestants as an etiologic factor and have come to use elimination diets as a more reliable approach. In other words, "the proof of the pudding is in the eating."

Read in the Symposium on Eczema at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

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The elimination diets can be of many types. The selection of the diet should be reasonably exclusive as the chance for success decreases as the number of foods allowed are increased. It is known that some foods are notorious reactors, e.g., wheat, eggs, pork, fish, cheese, tomatoes, and citrus fruits. Consequently, the basic diet should contain low allergenic foods. The diet should be of a palatability which will allow observance for a suitable period of time by those who are willing to co-operate. Rowe has suggested a system of group elimination, such as avoidance of cereals, fruit, vegetables and meat-free diets for trial periods. This is rather slow and requires a considerable period of time. I believe a more direct approach of ascertaining the dietary influence is by a basic diet containing a few palatable foods. For example:

Beef	broiled, roasted or boiled
Potato	baked, boiled or riced
Rye Krisp	
Tea	iced or hot
Sauces	cooked peach or pear
Rice	steamed or in beef stock obtained from the above boiled beef.
Sugar and salt	

The daily menu must be made up from the above foods. I have found that it is satisfactory enough for reasonable adherence for the period of time necessary for clinical observations. It should be scrupulously observed for at least a period of ten to fourteen days as it requires this period of time for the eczematous process to subside and significant degree of healing to occur. If no improvement of the dermatitis has occurred, then it may be concluded that the ingestants probably are not participating in the etiology. One may recheck on the possible reactivity of the above-mentioned foods by a similar period of a subsequent diet where they and all allied products are deleted.

On the other hand, if considerable improvement of the dermatitis has occurred during the trial period of this diet, then the patient is instructed to add one simple food every two days. If an exacerbation of the eczematous dermatitis occurs, the last added food and all similar foods are indicted and should be avoided for the time being. Notation by listing is made by diary method as reactions occur. As the sequence of addition of common foods are exhausted, the exotic and infrequent ones may be tried. The order of adding foods depends on the patient and the physician. I believe it is a good plan to add wheat, butter and milk early in the diet as they are frequent and important supplements and make the diet easier to carry out. Some weight loss occurs from this diet because of its low carbohydrate content but this is not too objectionable.

This type of diet enables one to evaluate the rôle of ingestants in a short period of time. On some occasions, we have been deceived by an improvement which was not related to dietary restrictions and they were merely co-incidental and spontaneous. Co-incidence frequently enters into scientific studies. We have caught these by extending the diet for another fourteen days. An exacerbation occurred in some instances in spite of strict adherence to the regime. This could easily occur in the functional types of eczema.

Topical therapy, such as application of antipruritic lotions and mild ointments, may be used in conjunction with the diet to afford some relief of itching and to avoid aggravating scratching factors. This does not militate against the evaluation of the diet as all these patients have been selected as previously refractory to topical therapy.

The question of other collaborating "X" factors such as fatigue, trauma, emotional and psychic stress, thermal influence, mixing of foods, has been considered to serve as trigger mechanisms in provoking an allergic reaction. This is conjectural and still unknown and is practically impossible to evaluate. It has been apparent to the practitioner who treats large numbers of eczematous subjects that the great majority of the cases are neuro-vascular dysfunctions and that allergy plays a minor role. Recent reported studies, evaluated by employing elimination diets, quote an average incidence as 7 to 10 per cent. It is my experience, that they are relatively rare.

OCCUPATIONAL ASPECTS OF ECZEMA

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WHEN discussing the occupational aspects of eczema, the greatest emphasis should be placed on the preventive treatment. The responsibility here falls on the shoulders of the industrial concern, the physician, and the patient himself. Once the eczema has developed, the treatment is that directed against any type of eczema, either occupational or non-occupational. The treatment must be most carefully and closely supervised to prevent loss of time from work. It aims to keep the patient on the job during treatment, or if he must lose time, return him to his job as quickly as possible. Occupational eruptions account for 60 per cent of industrial disease, excluding actual accidents.[3] For this reason great emphasis must be placed on proper screening of workers, adequate safeguards and prophylaxis, and accurate diagnosis and treatment.

The first step that should be taken is a careful pre-employment examination. The physician should eliminate prospective employes with dermatoses which might be aggravated by the type of employment; also the examiner should familiarize himself with the anatomic and physiologic variations in the skin which might predispose to occupational skin diseases. Workers with finely textured skin, as well as those with dry or senile skin, should not be employed where they contact strong primary irritants. Applicants who are light-sensitive (blondes and people with red hair and freckles) should not be hired in industries where they would contact petroleum products.

Histories obtained from these people are important indicators. Individuals with atopic backgrounds, history of vasomotor instability (hyperidrosis and dysidrosis), are more likely to develop an eczematous dermatitis of the exposed parts, especially if they are going to do wet work. In some industries, individuals who do not perspire freely are to be prefered, while in other industries a moist skin may be of advantage. Workers having thick oily skin withstand the action of fat solvents such as soaps, turpentine, naphtha, benzol, and carbon tetrachloride better than those with dry skin. Persons with a history of former skin sensitization should be refused employment where the work would entail contact with known sensitizers. Atopic individuals, especially those with hand eczemas, prove to be particularly susceptible to dermatitis when exposed to wet work, cleansers, or irritants.[1]

Anyone with a severe chronic dermatophytosis should not be employed until he is free from eruption. It is thought by some observers that these individuals are more likely to develop a contact dermatitis, an "id" eruption, and subsequent eczematization.

Race and age are important factors to be considered in certain job assignments. Dark-skinned people are less affected by exposure to light, heat and petroleum products. Senile skin reacts poorly to wet work.

The prevention of industrial dermatoses is an important phase of the subject. Indications for preventive measures vary with each industry. The object of any preventive measure is to decrease to a minimum the number and length of harmful exposures. Aside from the precautions exercised by the management of an industrial plant, the worker should be required to maintain excellent body hygiene and to report promptly the first indications of the development of a cutaneous disease. Hazards must be detected and eliminated by enclosures and making use of the most modern equipment. Mechanical devices should replace manual contacts; and where this is impossible, gloves should be worn; and when this cannot be done, protective liquids or creams should be tried. The latter must be selected with care because they can cause eruptions themselves. In some industrial processes, the workers may be required to wear protective clothing such as rubber gloves, impervious sleeves and aprons, masks and goggles. Where the irritant is a dust, greasy creams should not be used since these form an ointment with the

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poisonous dust, resulting in a continuation of the exposure. Greaseless creams may be used as a protection against petroleum and lubricating oils. Frequent inspection, cleaning and repair of protective clothing is essential. Proper ventilation and cleanliness of the workrooms is also important. Workers exposed to irritants should be taught to clean their skin thoroughly at the end of the day. Periodic instruction and inspection of the worker is always desirable.

No new substance should be introduced into industrial processes until its possible effect on the workers has been thoroughly studied.

The physician who is asked to rule on the occupational or non-occupational nature of a presenting disability accepts considerable responsibility. He must have a knowledge of industrial entities, the general working conditions of the particular plant, and the manufacturing processes involved. Then the doctor can determine if the patient can be treated while still at work, or if he must be removed temporarily for proper care, or if he will have to change occupations, and how soon he can be returned to work. It is a common observation that different irritants provoke identical cutaneous reactions. For example, the characteristics of an eczematous dermatitis caused by cutting oils do not differ from those of a dermatitis caused by synthetic resins. Industrial dermatoses cannot be differentiated by their appearance from other contact dermatoses caused by irritants in the patients' home or outside sources. Consequently the causal agent cannot be determined by a consideration of the charactistics of the eruption.

The treatment or management of industrial dermatitis or any contact dermatitis is divided into two parts: (1) the detection of the causal factors and the prevention of future contacts, and (2) symptomatic treatment for the relief of subjective symptoms and the cure of the eruption. The clinical characteristics and the mechanism of production of industrial dermatoses do not differ from contact dermatoses of non-industrial origin. Consequently the methods of investigation and the therapeutic indictations are identical with those for contact dermatitis in general.

Occupational or contact eczema may be non-allergic or allergic in type. Non-allergic dermatitis is caused by common irritants or substances which when applied to the skin in certain concentrations for a sufficient length of time produce a dermatitis in all individuals. These agents include strong soaps, acids, alkalis and solvents. The treatment of this type of dermatitis consists of prompt removal of the irritant, either by washing with water or a neutralizing solution. Later bland preparations should be used topically. In industrial allergic dermatitis the irritant or substance which produces the dermatitis is innocuous to the non-allergic employe. The dermatitis develops only after one or more contacts and often repeated contacts with the allergen. As previously mentioned, friction, heat, trauma, and excessive perspiration may be contributing factors. Some observers believe that focal or systemic infections or a dermatophytosis accompanied by a dermatophytid may increase an individual's susceptibility to contact allergy.

The management and solution of a case of occupational contact dermatitis of the allergic type is often very complex and difficult. Treatment of the eruption follows along simple dermatologic principles, but this alone is usually not sufficient. Although the dermatitis may disappear when the patient discontinues work, it recurs when he resumes work. A group of cases occur in which the primary dermatitis is followed by frequent relapses and finally by a chronic recalcitrant eczema, even after giving up employment. It is very often difficult in such cases to prove that the occupation and not the complication was the original disease.

Two valuable procedures are necessary for the investigation of a case of allergic occupational or contact dermatitis. The most important is an accurate detailed history regarding occupational and non-occupational exposures, length of present employment, previous employments, number of fellow employes and the incidence of dermatitis among them. From the history and knowledge of the nature of the patient's employment, clues are better obtained for further investigation by patch testing. The patch test must be performed by one who is familiar with the technique, precautions and interpretation of the test. A positive reaction indicates that the patient has an eczematous hypersensitivity to the substance tested but does not necessarily prove that the substance is the cause of the patient's eruption.[2] A person who is sensitive to the material with which he works and cannot develop an immunity or "become hardened" to it should seek some other occupation. The eczema, if uncomplicated, should disappear when a worker is away from the substance which has caused it. It is rare that cases of chronic incurable eczema can be positively traced to an industrial irritant.

Most cases of industrial dermatitis develop in new employes or in employes exposed to a new irritant and are usually mild in character. Such workers should not be taken off the job. It is much better to give them a protective ointment, protective clothing and let them continue to work. In general, workers who do not develop an immunity should be taken off the job and placed in some other occupation if possible.

Trade "eczema" of the hands can occur in varied occupational groups such as in housewives, barkeepers, bakers, printers, machinists, photographers, et cetera. Recently there has been an increased frequency of occupational dermatoses in pharmaceutical workers, dentists, doctors, and nurses who are becoming sensitized to antibiotics. Poison ivy may also be an occupational as well as a recreational hazard.

The chief therapeutic measures are directed toward preventing further injury to the skin. Itching is usually intense, and the trauma caused by scratching makes the dermatitis worse and is apt to produce or spread a secondary impetiginous infection.

The injudicious use of soap and water, friction of rough, tightly fitting garments, and the use of irritating remedies are secondary irritants which often make the dermatitis worse and prolong healing.

The successful treatment depends on the proper use of a few simple remedies in preference to complex preparations which have been advertised to the profession as possessing special merit because of some special ingredient or ointment base. Anesthetic drugs, mercury, picrates, resorcin, penicillin and the like possess strong allergenic properties and should not be used in uncomplicated dermatoses. Sometimes the patient is already sensitive to these and other commonly used remedies. The first indication is to relieve itching and acute inflammation. The more active the dermatitis, the more bland the remedy should be. Surface evaporation should be increased by the application of wet dressings and evaporating lotions.

In the presence of edema and vesiculation, wet dressings should be used. After the acute inflammatory reaction has subsided, treatment should be changed to evaporating and protective lotions. If the dermatitis is subacute, bland ointments are indicated. Chronic occupational eczema does not respond so quickly and satisfactorily to mild topical remedies. The skin is dry, thickened, scaly, and the pruritus is annoying; therefore, stimulating antipruritic ointments are indicated.

In summary, it may be said that occupational eczemas are in most cases contact dermatoses. They may be either a dermatitis due to primary irritants or a sensitization dermatitis. To a large extent these dermatoses are preventable, providing all the scientific facts now available are utilized in co-ordinated co-operation by the employer, employe, and physician. General principles for therapy are those for any eczema or dermatitis, either occupational or nonoccupational.

References

1. James, B. M., and Bleiberg, J.: Occupational and industrial dermatoses. J.M. Soc. New Jersey, 48:448 (Oct.) 1951.
2. Netherton, E. W.: Treatment of industrial dermatoses. Ohio State M. J., 38:671 (July) 1942.
3. Schwartz, L.: Incidence of occupational dermatoses and their cause in basic industries. J.A.M.A., 111: 1523 (Oct.) 1938.

LASDON FOUNDATION MEDICAL RESEARCH GRANTS

Grants for medical research totalling $264,424 have been appropriated for 1952 by the Lasdon Foundation, it has been announced by William S. Lasdon, Chairman of the Board. More than a score of institutions here and abroad will share in the grants.

One of the largest individual grants was awarded to the Rheumatic Fever Institute of Northwestern University for studies on the influence of dietary factors and enzyme metabolism on the development and treatment of rheumatic fever. Another large grant was given the University College, School of Medicine of Dublin, Ireland, for chemotherapeutic research in the field of tuberculosis, under the direction of Dr. Vincent C. Barry, an eminent authority in this field.

The Foundation is a philanthropic organization established four years ago by the Lasdon brothers, William S., Milton S., Stanley S. and J. S., to support research exclusively in the fields of medicine and health, an interest stemming from the Lasdon family's long affiliation with the pharmaceutical industry. The four Lasdon brothers have been associated for many years in the Nepera Chemical Company, pharmaceutical manufacturers of Yonkers, New York.

THE TREATMENT OF ECZEMA

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THE other papers in this symposium have dealt with the problems of contact and occupational dermatitis and the various other problems of eczema including psychogenic factors and their handling, as well as the allergic approach and its use and limitations in the therapy of eczema. Hence, this paper will present the local management of eczema and systemic forms of therapy that have not been discussed by other participants in this symposium.

Before the more or less specific measures are considered, it is well to recall two basic principles of therapy:

1. When in doubt as to treatment, always start with the mildest therapeutic measures.
2. As long as one method or regimen of treatment is providing relief and producing improvement of the eczematous eruption, that method or regimen should be continued.

Local Management

The local management of eczematous dermatitis depends primarily on the morphologic pattern of lesions presented by the patient. For the acute form of eczema, that is, when exudation, vesiculation, formation of bullae, and crusting are present, wet dressings are the treatment of choice. If the area involved is not secondarily infected, dressings wet in a 1 to 16 dilution of Burow's solution or a 0.5 per cent solution of aluminum subacetate, or even saline solution, are indicated. If the eruption is secondarily infected, wet dressings of 1 to 8,000 or 1 to 16,000 dilution of potassium permanganate, freshly prepared, or of Alibour solution, usually resolves the secondary infection so that other measures may be used subsequently. Wet dressings for dermatologic treatment are not impermeable, and the entire dressing should be changed every two or three hours. As the eruption becomes less acute, that is, as the active inflammatory reaction and exudation subside, shake lotions, such as calamine lotion, may be applied or the milder ointments such as plain Lassar's paste, boric acid ointment or zinc oxide ointment may be used. If a shake lotion itself is too drying, it may be thinly covered by a bland emollient. As the process then becomes more chronic, that is, if there is further resolution of the inflammatory reaction and the skin is lichenified and scaly, more stimulating preparations may be used as necessary, such as 3 per cent ichthyol in a base of zinc oxide ointment, or even tar preparations, to which may be added weak percentages of salicylic acid. The more stimulating preparations mentioned may be used in the initial treatment of chronic lichenified eczema of either atopic or contact origin. In addition to the wet dressings used for the secondarily infected lesions, antibiotics are of value. However, ointments containing penicillin or the sulfonamides are not advised because of the high incidence of sensitizations, rather, preparations containing aureomycin, bacitracin, terramycin, or neomycin should be applied since these are less frequently sensitizing.

In addition to the measures outlined, soothing baths of a colloidal nature frequently are beneficial and antipruritic, as well as contributing to the resolution of the inflammatory reaction. These baths may contain starch and soda, boiled oatmeal, or a prepared form of oatmeal, such as aveeno.

If the pruritus is intense, occasionally ointments or shake lotions containing antihistamines are of some value. However, rather frequently sensitizations arise from their use, so that they should be used cautiously. More recently, quotane, either ointment or lotion, has produced excellent results in the alleviation of pruritus with a low sensitizing index.

Systemic Therapy

Systemic therapy, aside from the essential measures mentioned in the other papers in this symposium, usually is not necessary except in cases in which eczema is resistant to local measures. Antipruritic preparations, such as antihistamines, may be given in an attempt to alleviate the pruritus. Aspirin is frequently an excellent antipruritic and may be given in doses of 10 grains (0.65 gm.) four or five times a day. Foreign

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protein therapy is an excellent adjunct to other methods of therapy, both in the control of pruritus and in having a more specific effect on the inflammatory reaction of the skin. Autohemotherapy is a mild form of foreign protein therapy and consists of the withdrawal of 8 to 10 cc. from the antecubital vein of the patient; this is injected immediately into one buttock. This procedure may be repeated daily for a short period or two or three times a week for as long as two or three weeks. Other forms of foreign protein therapy include the intravenous use of triple typhoid vaccine, and the use of pyromen (a soluble pyrogen). Small subfebrile doses of pyromen, such as 1 or 2 gamma, administered subcutaneously twice daily for seven to ten days have been advocated by some. However, my colleagues and I have had but little experience with this technique, and we consider when using pyromen that the febrile reaction better produces the results desired.

While cortisone or corticotropin (ACTH) or both have been shown to be of definite value in the relief of inflammatory and pruritic symptoms of acute eczema of either contact or atopic origin, use of these hormones is contraindicated in the treatment of the usual eczematous individual. There is an almost immediate remission in the pruritus of atopic dermatitis followed shortly by improvement of the inflammatory phenomenon. However, these patients have a distinct tendency to become dependent on the hormone in order to obtain relief of their most distressing symptoms. Hence, it is sugested that use of these hormones for atopic dermatitis be restricted to those patients whose condition is resistant to the other types of therapy. If it is necessary to use these hormones, it is suggested that they be given in short courses of therapy. They do not cure atopic dermatitis; there is almost always a relapse of the dermatitis within a short period after administration of corticotropin or cortisone is discontinued and not infrequently the relapse is worse than the pretreatment state of dermatitis.

In contact dermatitis cortisone and corticotropin (ACTH) again produce marked improvement, but it is suggested that these measures not be used in lieu of attempting to detect the contact irritant. If used, the use should be confined to the patient who has acute, rapidly progressive dermatitis with sensitization which cannot be controlled with the usual therapeutic measures. If given, cortisone should be given in full dosage for two or three days and then the dose should be diminished rapidly so that the total course of therapy probably does not last more than seven or ten days.

Desensitization.—For contact dermatitis, attempts at desensitization for the most part have proved to be unsatisfactory. The natural process of "hardening" occurs frequently in industry and with greater frequency than is usually considered likely. However, for most nonindustrial types of contact dermatitis therapeutic attempts at desensitization have not proved too satisfactory. Desensitization affords improvement in the dermatitis or complete relief to no more than 15 or 20 per cent of the patients with ragweed dermatitis taking such treatment. The same controversial aspect appears in the literature concerning patients with repeated bouts of dermatitis venenata due to poison ivy. Recently there is evidence that an aqueous alum-precipitated pyridine extract may be of more value in the prevention and treatment of poison ivy dermatitis than older preparations.

Treatment of Secondary Eczema

Secondary eczematization may complicate and be part of a basic seborrheic dermatitis. In this event the initial treatment again is to allay the eczematous element and then to treat the basic seborrheic reaction. Selsun (a shampoo containing selenium disulfide) is a satisfactory preparation when the eruption involves both the scalp and other hairy portions of the body. It has been used in exudative areas as well without the observance of toxic manifestations. Iodochlorhydroxyquin (vioform), 3 per cent, in cream or ointment is also of value in the treatment of the basic seborrheic dermatitis, as are more familiar preparations containing sulfur.

There is a group of eczematous eruptions confined to the hands that may be nonatopic, nonoccupational and noncontact, and this group presents one of the therapeutic problems. Atopic and contact features must be recognized and ruled out in all instances of eczema of the hands, but there are other causes for which search must be made. Among these are the fungus infections of the hands themselves, which are uncommon, or the so-called vesicular "id" reaction of the hands and fingers, which is seen in conjunction with an acute, inflammatory reaction of the feet. If the eruption is an "id" reaction, the cure of the inflammatory reaction of the feet, or its remission, results in a spontaneous remission of the eruption on the hands. The uncommon mycotic eruption may be identified by direct examination of the vesicles or scales in solution of potassium hydroxide or by culture. The mycelial elements and spores may be recognized under a microscope. The treatment for the acute reaction consists first of whatever will alleviate the acute inflammatory reaction and then, as this subsides, fungicidal preparations may be used.

Other eczematous reactions of the hands may be part of other dermatologic entities, and also secondary to visceral disease, including foci of infection. If the latter are present, the reaction of the palms and soles is more apt to be basically pustular in type but cultures of the pustules are sterile. The underlying focus of infection must be found and treatment directed accordingly. Eczema of this type closely stimulates pustular psoriasis, and unless there is psoriasis elsewhere on the body, it may be indistinguishable clinically from psoriasis. Occasionally, eczematous eruptions of the hands may be due to foods, but in our experience skin tests are of but little value in elucidating the offending agent. Dietary restrictions, according to the methods of Rowe or Flood, may be attempted. However, these reactions seem to be rare, for we have seen but little help from such elimination diets.

One of the most frequent types of dermatitis or eczematoid eruptions of the hands arises as part of dysidrosis or pompholyx, in which the primary lesion is a deep-seated vesicle appearing on the palms and soles or on the sides of the fingers. This is an eruption due frequently to psychogenic factors, and the management is such as has been described elsewhere in this symposium. Another frequently seen eczematous eruption of the hands is that due to household duties, excessive use of soaps, solvents and the like. The eruption, then, is basically contact in type and should be dealt with as contact dermatitis is. The use of rubber gloves with cotton liners should be stressed when household tasks are being performed, and the skin should be lubricated frequently with emollients in an attempt to counteract the excessive drying which the skin has undergone.

Summary

An attempt has been made to discuss briefly the principles of local treatment and management of patients with an eczematous type of dermatitis. Other papers in this series have dealt with the basic concepts of allergy, the elucidation of contact factors, and the psychogenic implications dealt with in certain patients. The basic principles must be dealt with in all patients; otherwise local and systemic therapy will produce less benefit and relief of an eczematous dermatitis.

TAXES

We continue to print from time to time comment relating to taxes in the hope that the membership will note how far this nation has progressed toward what seems perilously near to a confiscatory level.

How high can the Federal tax be jacked before it topples on the economy, impairing earning power, and crushing incentive?

Many economists thought the limit had been reached in wartime 1945, when the U. S. Treasury collected a record total of $43,353,000,000—29.5 per cent of the national income.

Last year Washington collected a total of $56,093,339,429—20.7 per cent of the national income—and moved on with still higher rates, e.g., an increase of 11 per cent in income taxes, to collect still more this year. Of 1951's take, $30,046,211,980 was collected from personal-income, retirement, old-age, and unemployment taxes. The rest came out of corporation profits and miscellaneous excise taxes, which will also be higher for 1952.

While the Federal collector was busy, state and local taxes were also pouring in. The nation's total estimated 1951 tax bill: $73,593,339,429, an average of $468 for every man, woman, and child in the United States.*

"The schoolboy whips his taxed top; the beardless youth manages his taxed horse with a taxed bridle on a taxed road; and the dying Englishman, pouring his medicine, which has paid seven per cent, into a spoon that has paid fifteen per cent, flings himself back upon his chintz bed which has paid twenty-two per cent, and expires in the arms of an apothecary who has paid a license of a hundred pounds for the privilege of putting him to death." Thus Sydney Smith wrote in a review of Seybert's *Annals of the United States* in 1820. What would he have written in 1952? Your guess is as good as ours. Do not forget as you go to register and vote that "The power to tax is the power to destroy."—*New York State Medical Journal,* July 15, 1952.

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*Statistical data from *Time* Magazine, May 5, 1952, p. 25.

ANTIBIOTIC THERAPY OF BACTERIAL ENDOCARDITIS

II. Current Trends in the Treatment of Subacute Bacterial Endocarditis

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THE ideal antibiotic for the treatment of bacterial endocarditis should have the following features: (1) it is bactericidal for both Gram-negative and Gram-positive organisms and is able to penetrate to the depths of vegetations, (2) it can be administered orally, (3) it is adequately absorbed without producing gastrointestinal irritation, (4) it has little or no toxicity, (5) it usually produces cure of the disease within ten to fourteen days.

Such an antibiotic is not yet at hand, but it is not too optimistic to state that, in view of the pace of current antibiotic research, availability of an antibiotic agent possessing most of the features just mentioned is a distinct future possibility.

Use of Penicillin in Endocarditis

During the past decade, penicillin has been the antibiotic of choice in most instances for the treatment of bacterial endocarditis. The value of this agent in the treatment of this disease has been reported by many observers.[2,6,12] When penicillin was first introduced, only small doses could be used and the rate of relapses and failures was large. When larger doses became possible, the results of treatment improved. The experiences in the treatment of bacterial endocarditis both in this country and in Great Britain were parallel and are exemplified by the recent report of Cates and Christie that summarized 442 cases in fourteen treatment centers in England in which treatment with penicillin alone was used under the supervision of the Penicillin Trials Committee of the Medical Research Council.[6] The results of this clinical investigation revealed that, in the early trials, the duration of treatment was more important than the daily dose. Later trials proved that the daily dose should be larger. After April, 1946, seventy-one patients who had been untreated were given 500,000 units of penicillin per day for one month. In 20 per cent of these patients, relapse or death occurred and the infection was not under control. More recently, eighteen patients were given 2,000,000 units per day for four to six weeks. None of these patients had relapses or died with active infection.

The Medical Research Council of England recommends that for the treatment of endocarditis, regardless of how sensitive the offending organism may be, the minimal daily dose of penicillin should be 2,000,000 units and the period of treatment should be four to six weeks. The experience in this country has been similar, and the tendency has been to give larger and larger daily doses of penicillin. Currently, the recommended treatment is to give 2,000,000 units of penicillin per day when the infection is caused by organisms that are sensitive to a concentration of penicillin of 0.1 unit per cubic centimeter or less, and to continue this dosage for a period of four to six weeks. When the causative organism is more resistant to penicillin, the daily dose is larger, depending on the relative resistance of the offending organism.

Synergism and Antagonism of Antibiotics

Since streptococci sensitive to penicillin have been found to cause approximately 80 to 90 per cent of cases of subacute bacterial endocarditis, the use of penicillin alone in the recommended dosage has been satisfactory and curative. However, it has been noted that in cases caused by enterococci, which comprise from 3 to 15 per cent of any series, only an occasional cure was produced and then only by the use of large amounts of penicillin. In 1947, Hunter[13] first successfully treated enterococcal endocarditis with the use of a combination of penicillin and streptomycin. Since then, many clinical and *in vitro* studies have been published relative to the combination of these two antibiotics and its use in the treatment of subacute bacterial endocarditis.

Both *in vitro* and *in vivo* studies concerning synergism and antagonism resulting from the use of combined antibiotics have been recorded by Klein and Kimmelman, Nichols, Spicer, Jawetz

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and colleagues,[9,16,17,23] Robbins and Tompsett, Hunter,[14,15] Lepper and Dowling, Ahern and associates and Bachman. These studies have disclosed a synergistic effect on the bactericidal action of penicillin when penicillin and streptomycin or penicillin and bacitracin are used together.

The addition of streptomycin to a bacteriologic culture tube containing penicillin causes more rapid and greater bactericidal action, so that all the bacteria in the culture tend to be killed. When penicillin is used alone, a small residue of viable organisms often remains. Complete killing of the organisms is more likely to occur when the two antibiotics are used together than when they are used alone. This is true for most strains of streptococci and other organisms, and is particularly true for the enterococci.

Recent work also demonstrates an antagonism between penicillin and the broad-spectrum antibiotics, such as aureomycin, terramycin and chloramphenicol, both *in vitro* and *in vivo*.[16,23,25] When one of these antibiotics and penicillin are used together, a definite retardation occurs in the rate of bactericidal action of penicillin. Study of subacute infections in mice caused by Streptococcus pyogenes in which combined therapy for five days was used has revealed synergism between penicillin and either streptomycin or bacitracin and antagonism between penicillin and either chloramphenicol or terramycin.[23] *In vitro* studies indicate that this antagonism occurs when the broad-spectrum antibiotics are used in concentrations that are bacteriostatic and does not occur when the concentration is insufficient to produce bacteriostasis or when the concentration is high enough to be bactericidal.

Jawetz and his colleagues recently have shown that antagonism exists also when the broad-spectrum antibiotics are used with streptomycin.[16] However, the antagonism with streptomycin is low when compared to that of penicillin. The evidence indicates that interference occurs only when the organisms are multiplying. A recent report indicated that no antagonism between penicillin and chloramphenicol was demonstrable in mice that were infected with group A streptococci and treated with these two antibiotics for three days.[1] Interference occurred initially but prolonged combined treatment caused a progressive bactericidal action that apparently protected the mice as efficiently as did the use of penicillin alone. Many studies and reports concerning synergism and antagonism of antibiotics indicate that the problem of combined therapy in patients is complex. Many additional careful *in vitro* and *in vivo* investigations, in addition to the actual treatment of many patients, will be necessary before ideas concerning this subject can crystallize clearly.

However, a number of clinical and laboratory studies indicate that definite exceptions exist to the broad generalizations just mentioned concerning antibiotic antagonism.[10,11,17,25] These exceptions occur in situations in which true synergism appears to result from the use of two or more antibiotics against an organism that is resistant to one or more of these agents when they are used separately.[17] Only rarely has it been found that streptomycin interferes with the bactericidal action of penicillin or fails to enhance its effect.[8]

Combined Therapy.—These clinical and *in vitro* investigations have led to the current tendency on the part of some physicians to use combined treatment for bacterial endocarditis. Robbins and Tompsett, Loewe and associates and Hunter[15] have reported on the successful use of a combination of penicillin and streptomycin for treatment of endocarditis caused by Streptococcus faecalis. Penicillin and bacitracin in combination have also been used successfully when penicillin-resistant streptococci were involved[26] and also in a case of endocarditis in which reinfection with a diphtheroid bacillus occurred.[27] Friedberg and Bader stated that the use of bacitracin was curative when it was added to the combination of penicillin and aureomycin after the later two antibiotics had failed to produce any response. On occasion terramycin and streptomycin have been effective when the causative organism was found to be resistant to the commonly used antibiotics when they were given alone.[17] However, this latter combination was not greatly effective in five of six cases in which it was employed at the Mayo Clinic.[18] Hunter has suggested that short-term combined therapy of infections caused by penicillin-sensitive streptococci might be practical and curative in view of the studies on penicillin-streptomycin synergism and he has noted good results in five patients so treated thus far.[14,15]

Clinical Data in Forty-Six Cases

In the light of these recent studies it was felt desirable to review briefly at this time the experience of my colleagues and myself in the treatment

TABLE I. CAUSATIVE ORGANISMS IN 46 CASES OF BACTERIAL ENDOCARDITIS

Organism	Number
Streptococcus mitis	21
Streptococcus (anaerobic)	1
Streptococcus salivarius	1
Streptococcus (type undetermined)	1
Streptococcus faecalis	10
Micrococcus pyogenes*	5
Micrococcus (species undetermined)	2
Hemophilus (species undetermined)	1
No organism isolated†	4
Total	46

*Four of these cases would be classified as acute bacterial endocarditis.

†Diagnosis unsuspected clinically and noted at necropsy in 1 case; in the other 3, repeated cultures before and after treatment were sterile.

TABLE II. SENSITIVITY TO PENICILLIN OF ORGANISMS ISOLATED FROM ENDOCARDITIS

Organism*	Sensitivity to Penicillin in Units per cc. <0.05	0.1	0.2	0.8	1.6	3.2	>3.2
Streptococcus mitis	12	6		1	1	1	
Streptococcus salivarius		1					
Streptococcus (type undetermined)			1				
Streptococcus faecalis†					1	5	3
Micrococcus pyogenes	2	1			1		1
Micrococcus (species undetermined)		1			1		

*Hemophilus isolated in 1 case: sensitivity to terramycin 1.5 mcg./cc.; to streptomycin <1.5 mcg./cc.; not tested to penicillin.

†One organism found at necropsy only.

TABLE III. TREATMENT EMPLOYED IN 46 CASES OF BACTERIAL ENDOCARDITIS

Type of Therapy	Causative Organism	Number	Total*
Penicillin alone	Streptococcus mitis†	3	9
	Streptococcus faecalis	1	
	Micrococcus pyogenes	5	
Penicillin-dihydrostreptomycin combined	Streptococcal endocarditis (mitis, salivarius, anaerobic, unidentified)	24	34
	Streptococcus faecalis	9	
	Micrococcus (species undetermined)	1	
Terramycin-dihydrostreptomycin combined	Streptococcus mitis	3	6
	Streptococcus faecalis	2	
	Hemophilus (species undetermined)	1	
None or inadequate			2
			51

*More than one combination employed in several cases before infection was brought under control.

†Treated before short-term therapy with combined penicillin-dihydrostreptomycin was introduced; all 3 organisms penicillin-sensitive.

of endocarditis during the past twenty months. Forty-six cases have been encountered, and the causative organisms isolated in these cases are listed in Table I. In thirty-four of the forty-six cases (74 per cent) streptococci were isolated. It will be noted in Table II that, of the thirty-two strains of streptococci tested *in vitro,* nineteen were sensitive to a concentration of penicillin of 0.1 unit per cubic centimeter or less, while eleven were resistant and two were relatively resistant. Studies of sensitivity were not done in two cases. Nine of the resistant organisms were enterococci (Streptococcus faecalis). Thus, of the thirty-two strains of streptococci tested, penicillin-sensitive organisms made up only 59 per cent of the total. The organisms in four of the seven cases of micrococcal endocarditis were sensitive to 0.1 unit of penicillin or less, and the remaining three were resistant. Hemophilus was isolated in one case and it proved to be sensitive to both terramycin and dihydrostreptomycin.

The treatment employed in these forty-six patients is listed in Table III. It will be noted that only nine (20 per cent) were treated with penicillin alone. In thirty-seven cases (80 per cent) combined therapy was used. In thirty of the thirty-four cases of streptococcal endocarditis, combined therapy consisting of a combination of penicillin and dihydrostreptomycin was used. In five of these cases therapy with terramycin and dihydrostreptomycin was used also but was abandoned because the infection either was not brought under control or relapsed. In four cases of streptococcal endocarditis, penicillin alone was used. If treatment in these four cases were to be instituted today, a combination of penicillin and dihydrostreptomycin would be given. In the cases of micrococcal endocarditis, penicillin alone was used five times and combined treatment with penicillin and dihydrostreptomycin was used once; in addition, inadequate therapy was given once. The single patient with endocarditis caused by Hemophilus was treated with a combination of terramycin and dihydrostreptomycin for two weeks. This resulted in a cure, and the patient has remained well for one year.

Complete follow-up studies are not yet available but it can be stated at this time that the immediate mortality rate (death during treatment or within a month or two) was 24 per cent (death occurred in eleven of the forty-six patients in whom the diagnosis was made ante mortem). The deaths were caused by complications of the disease and consisted of congestive cardiac failure in most cases, cerebral embolism and hemorrhage, renal insufficiency, pulmonary embolism with ventricular fibrillation and extensive septic infarction of the lungs.[4]

Short-term Combined Therapy for Infections Caused by Penicillin-sensitive Streptococci.—For fifteen of the patients in whom endocarditis was caused by penicillin-sensitive streptococci combined short-term therapy with penicillin and dihydrostreptomycin was employed. All these patients have been seen at the clinic in the past fourteen months and they represent a series of consecutive instances of this type of endocarditis. In thirteen of these cases the causative organism was Streptococcus mitis, in one it was Streptococcus salivarius and in one the streptococcus was not identifiable. It was extremely difficult to grow this last organism and its sensitivity was difficult to obtain. The sensitivity *in vitro* of this organism was finally revealed to be between 0.1 and 0.2 units of penicillin per cubic centimeter.

All of the patients were treated for a period of fourteen days except in two instances. These two patients were treated for twenty days because of the prolonged duration of the disease (nine and seventeen months respectively) and because they exhibited debility and undernutrition. In one of these two cases the endocarditis was caused by the unidentified streptococcus just mentioned. Penicillin and dihydrostreptomycin were given together intramuscularly every six, eight or twelve hours. The daily dose varied between 1,200,000 and 2,400,000 units of penicillin and between 1.2 and 2.4 gm. of dihydrostreptomycin.* Most of the individuals received the larger doses. The value for penicillin in the blood when the larger doses were used ranged from 1 to 4 units per cubic centimeter, averaging approximately 2 units.

Response to treatment was good and prompt. The temperature fell to normal either on the same day that treatment was started or on the day after. In one patient, a low-grade fever was present for most of the period of treatment but this disappeared before therapy was completed. Repeated cultures of the blood during and after treatment were sterile in this case. The condition of every patient improved promptly and the cultures of blood became sterile in all cases in which organisms had been found originally.

Of the fifteen patients who received short-term, combined therapy, four have died, three from congestive cardiac failure and one from cerebral embolism. The remaining patients have been well and have had follow-up studies ranging from three to fourteen months. The four deaths occurred on the tenth and eleventh days of treatment in two cases, and ten days and two months following treatment in two cases. Necropsies were done in the two cases in which death occurred during treatment, and cultures at necropsy of the vegetations in one case were sterile.

These results, together with the results obtained by Hunter[15] with ten days of treatment, indicate that short-term, combined therapy with penicillin and dihydrostreptomycin for ten to fourteen days is a practical curative form of treatment for patients with endocarditis caused by penicillin-sensitive streptococci. However, the total number of cases is still small, and more experience is needed before any final conclusions can be drawn. The results thus far are encouraging and warrant continuation of this form of therapy for subacute streptococcal endocarditis that is caused by organisms sensitive to 0.1 unit of penicillin or less. The daily intramuscular administration of 2,000,000 units of procaine penicillin and 2 gm. of dihydrostreptomycin, given in divided doses every six or twelve hours, for ten to fourteen days gives effective levels of antibiotic in the blood and provides adequate therapeutic response.

The average duration of symptoms before treatment in these patients was four months or more. The duration in the four patients who died was 3.9 months, in contrast to a duration of 4.6 months in the patients who responded satisfactorily. This difference does not appear to be significant. If diagnosis had been made and treatment in these cases started early, perhaps in the first month of the disease, the results might have been different. The interval between the onset of the disease and the onset of treatment is one variable that can be controlled by physicians, and it is reasonable to conclude that the results of treatment would be much better if treatment is begun as early as possible. Previous reports indicate that the duration of the disease before treatment is a definite factor in prognosis.

Treatment of Endocarditis Caused by Enterococci.—The *in vitro* and clinical studies of Hunter,[15] Robbins and Tompsett, Loewe and associates and Jawetz and colleagues[9] indicate that combined therapy with penicillin and dihydrostreptomycin is the present treatment of choice for subacute enterococcal endocarditis. The daily administration of 10,000,000 units of penicillin, together with 2 gm. of streptomycin, for a period of four to six weeks has been recommended by Hunter.[15]

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*We are indebted to Eli Lilly and Company and to Chas. Pfizer and Company, Inc., for the generous supply of the procaine penicillin-dihydrostreptomycin. In most of the cases, a disposable cartridge containing both antibiotics was used for intramuscular injection.

Six of seven patients with enterococcal endocarditis who received adequate combined therapy during this study recovered and have remained well. The seventh patient received 10,000,000 units of penicillin per day for thirty-eight days, together with daily use of dihydrostreptomycin and 2 gm. of probenecid (benemid). Relapse occurred three months after therapy was completed. During the second course of treatment, 15,000,000 units of penicillin per day, together with dihydrostreptomycin and benemid, were given for fifty days. The value for penicillin in the blood was maintained almost continuously at a level that was five times or more the value for the *in vitro* sensitivity of the organism. Cultures of the blood consistently were sterile during the period of treatment. Relapse occurred again one and a half months after treatment had been discontinued. This patient now is undergoing a third course of therapy.

The daily dose of penicillin in the seven patients treated during this study has varied from 6,000,000 to 15,000,000 units given by the method of continuous intravenous drip for twenty-eight to fifty days. Dihydrostreptomycin in doses of 0.5 gm. was given intramuscularly every six hours for the first two weeks of treatment. The dose was then reduced to 0.5 gm. given twice daily for the remainder of the period. Benemid was given in doses of 0.5 gm. every six hours if necessary to produce adequate levels of penicillin in the blood.[5] In the patient who had relapsing enterococcal endocarditis, benemid was given in daily doses of 2 gm. for the first forty days and in doses of 4 gm. per day (1 gm. every six hours) for the last ten days without the appearance of any signs of toxicity.

The dosage and duration of treatment for enterococcal endocarditis are not yet well defined. However, the daily dose of penicillin appears to depend on the *in vitro* sensitivity of the organism, the height of the levels of antibiotic obtained in the blood and the clinical response of the patient. In addition to the relapse just mentioned, two of the other patients who were treated with the smaller doses of penicillin and dihydrostreptomycin for twenty-eight days also had relapses. Control of the infection was then achieved with six weeks of combined therapy. It would appear that six weeks of combined treatment is the safest schedule to employ in enterococcal endocarditis. The incidence of toxicity from the dosage of dihydrostreptomycin used in this study was small. Mild deafness occurred in one of the thirty-four patients in whom combined therapy with penicillin and dihydrostreptomycin was employed; transient vertigo occurred in another on the twenty-first day of treatment (when the dose of dihydrostreptomycin was being changed from 2 gm. to 1 gm. per day), and numbness of the fingertips occurred in a third.

The total number of cases of enterococcal endocarditis recorded in the literature in which combined treatment has been used is not large, and further experience is necessary before any final statements regarding the therapy of this form of endocarditis can be made. It is to be hoped that a more nearly ideal antibiotic will be found, perhaps in oral form, that has penetrative and bactericidal properties. Such an agent will simplify the treatment of this infection.

Treatment of Endocarditis Associated with Sterile Blood Cultures.—In three cases of this series, the clinical picture was unmistakably that of bacterial endocarditis except that cultures of the blood failed to reveal any organisms. Combined therapy, consisting of 5,000,000 to 10,000,000 units of penicillin per day administered by the intermittent intramuscular or intravenous route, together with dihydrostreptomycin, was given for four to six weeks in these cases. The infection was controlled in all three. Treatment in cases of this type should be the same as that used in cases in which the organism is either penicillin-resistant or is an enterococcus. Apparently these patients in whom sterile cultures of blood persist do not do as well when smaller daily doses of penicillin are given.[6]

Summary

The experience in the management of forty-six cases of bacterial endocarditis encountered in the past twenty months at the Mayo Clinic, together with recent trends in the antibiotic treatment of this disease, has been briefly reviewed. Thirty-four of the forty-six infections (74 per cent) were caused by streptococci. Of the thirty-two strains of streptococci tested *in vitro,* only nineteen (59 per cent) were sensitive to penicillin.

The data in a series of fifteen consecutive cases of endocarditis caused by penicillin-sensitive streptococci in which short-term combined therapy with penicillin and dihydrostreptomycin was used are summarized. It would appear that the use of 2,000,000 units of penicillin and 2 gm. of dihydrostreptomycin per day administered intramuscularly in divided doses every six or twelve hours for ten to fourteen days is adequate for treatment in these cases. The total number of cases in which these short periods of treatment have been used is small, and experience needs to be extended considerably before any final conclusions can be made.

The management of subacute enterococcal endocarditis and of endocarditis with sterile cultures of blood is discussed.

Combined treatment was employed in approximately 80 per cent of these forty-six cases, whereas penicillin alone was used in 20 per cent.

Although follow-up studies in these forty-six cases are not yet complete, the immediate mortality rate resulting from complications of the disease was 24 per cent.

Further search is needed for newer antibiotics that can meet the requirements of a more nearly ideal drug for the treatment of endocarditis.

References

1. Ahern, J. J.; Burnell, J. M., and Kirby, W. M. M.: Lack of interference of chloramphenicol with penicillin in hemolytic streptococcal infection in mice. Proc. Soc. Exper. Biol. & Med., 79:568-571 (Apr.) 1952.
2. Anderson, D. G., and Keefer, C. S.: The Therapeutic Value of Penicillin; a Study of 10,000 Cases. Pp. 13-37. Ann Arbor, Michigan: J. W. Edwards, 1948.
3. Bachman, M. C.: In vitro studies on possible synergistic action between penicillin and bacitracin. J. Clin. Investigation, 28:864-866 (Sept.) 1949.
4. Bain, R. C.; Geraci, J. E.; DuShane, J. W., and Edwards, J. E.: Cardiac clinics. CXXXVIII. Bacterial endocarditis of the tricuspid valve in a 15-month-old infant. Proc. Staff Meet., Mayo Clin., 27:180-187 (Apr. 23) 1952.
5. Burnell, J. M., and Kirby, W. M. M.: Effectiveness of a new compound, benemid, in elevating serum penicillin concentrations. J. Clin. Investigation, 30: 697-700 (July) 1951.
6. Cates, J. E., and Christie, R. V.: Subacute bacterial endocarditis; a review of 442 patients treated in fourteen centres appointed by the penicillin trials committee of the medical research council. Quart. J. Med., n.s. 20:93-130 (Apr.) 1951.
7. Friedberg, C. K., and Bader, M. E.: Acute staphylococcic endocarditis cured with the aid of bacitracin. J.A.M.A., 147:46-49 (Sept. 1) 1951.
8. Geraci, J. E.: Antibiotic therapy of bacterial endocarditis. I. Experiences with terramycin in the treatment of subacute bacterial endocarditis. Proc. Staff Meet., Mayo Clin., 27:169-180 (Apr. 23) 1952.
9. Gunnison, Janet B.; Jawetz, Ernest, and Coleman Virginia R.: The effect of combinations of antibiotics on enteroccocci in vitro. J. Lab. & Clin. Med., 36:900-911 (Dec.) 1950.
10. Herrell, W. E., and Barber, T. E.: Brucellosis (undulant fever). In Conn, H. F.: Current Therapy. Philadelphia: W. B. Saunders Company. (In press.)
11. Herrell, W. E.; Heilman, F. R., and Wellman, W. E.: Some bacteriologic, pharmacologic, and clinical observations on terramycin. Ann. New York Acad. Sc., 53:448-458 (Sept. 15) 1950.
12. Hunter, T. H.: Treatment of subacute bacterial endocarditis. Mod. Concepts Cardiovas. Dis., 15:8 (Aug.) 1946.
13. Hunter, T. H.: Use of streptomycin in the treatment of bacterial endocarditis. Am. J. Med., 2:436-442 (May) 1947.
14. Hunter, T. H.: Speculations on the mechanism of cure of bacterial endocarditis. J.A.M.A., 144:524-527 (Oct. 14) 1950.
15. Hunter, T. H.: The treatment of some bacterial infections of the heart and pericardium. Bull. New York Acad. Med., 28:213-228 (Apr.) 1952.
16. Jawetz, Ernest; Gunnison, Janet B., and Speck, R. S.: Studies on antibiotic synergism and antagonism: the interference of aureomycin, chloramphenicol and terramycin with the action of streptomycin. Am. J. M. Sc., 222:404-412 (Oct.) 1951.
17. Jawetz, E.; Gunnison, J. B., and Speck, R. S.: Antibiotic synergism and antagonism. New England J. Med., 245: 966-968 (Dec. 20) 1951.
18. Klein, Morton, and Kimmelman, L. J.: The correlation between the inhibition of drug resistance and synergism in streptomycin and penicillin. J. Bact., 54:363-370 (Sept.) 1947.
19. Lepper, M. H., and Dowling, H. F.: Treatment of pneumococcic meningitis with penicillin compared with penicillin plus aureomycin; studies including observations on an apparent antagonism between penicillin and aureomycin. Arch. Int. Med., 88:489-494 (Oct.) 1951.
20. Loewe, L.; Candel, S., and Eiber, H. B.: Therapy of subacute enterococcus (streptococcus fecalis) endocarditis. Ann. Int. Med., 34:717-736 (Mar.) 1951.
21. Nichols, Anna C.: Bactericidal action of streptomycin-penicillin mixtures in vitro. Proc. Soc. Exper. Biol. & Med., 69:477-478 (Dec.) 1948.
22. Robbins, W. C., and Tompsett, Ralph: Treatment of enterococcal endocarditis and bacteremia: results of combined therapy with penicillin and streptomycin. Am. J. Med., 10:278-299 (Mar.) 1951.
23. Speck, R. S., and Jawetz, E: Antibiotic synergism and antagonism in a subacute experimental streptococcus infection in mice. Am. J. M. Sc., 223:280-285 (Mar.) 1952.
24. Spicer, Sophie: Bacteriologic studies of the newer antibiotics: effect of combined drugs on microorganisms. J. Lab. & Clin. Med., 36:183-191 (Aug.) 1950.
25. Spies, H. W.; Dowling, H. F.; Lepper, M. H.; Wolfe, C. K., and Caldwell, E. R., Jr.: Aureomycin in the treatment of bacterial endocarditis; report of nine cases together with a study of the synergistic action of aureomycin and penicillin in one case. Arch. Int. Med., 87:66-78 (Jan.) 1951.
26. Volini, I. F., and Kadison, E. R.: Simultaneous bacitracin and penicillin therapy in subacute bacterial endocarditis; a report on three cases. Am. Pract., 2:13-14 (Jan.) 1951.
27. Wallach, Robert, and Pomerantz, Norman: Combined antibiotic therapy; report of a case of subacute bacterial endocarditis reinfected with a diphtheroid and successfully treated with penicillin and bacitracin. Arch. Int. Med., 88:840-846 (Dec.) 1951.

LIPOSARCOMA OF THE TRANSVERSE MESOCOLON

Report of a Case

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ALTHOUGH benign tumors of fat (lipomas) are among the most common tumors encountered, malignant changes in these tumors and primary malignant tumors of fat are some of the rarest of the malignant lesions. An indication of the rarity of liposarcoma is furnished by the report by Moreland and McNamara of nine cases in 16,000 tumor patients seen at a Veterans Administration facility, the report of one case by McCormick in more than 2,200 personally treated cancer patients, and the fact that Dr. A. P. Stout, who is especially interested in soft tissue sarcomas, has collected only 115 cases from July, 1906, to January, 1949, at Columbia University. It is thought that the rarity of this tumor and the great size which it attains, together with other interesting and unusual features, constitute sufficient reasons for recording our experiences with a case of liposarcoma.

Liposarcomas may be found in any location in which fat is normally present. The most common locations are the intermuscular and fascial planes of the buttocks and limbs and in the retroperitoneal spaces. The tumors are also found in the mesentery, in bones, in the thorax and in the kidney. Liposarcoma of the stomach has been reported.

Liposarcomas may reach a tremendous size. One has been reported weighing 69 pounds and others 63.8, 56, 51, 47 and 38.5 pounds. They are usually well circumscribed, often pseudo-encapsulated and resemble brain tissue. On cursory examination liposarcomas have been mistaken for brain. In the depths of the convolutions a fine network of blood vessels may be found. When the tumor is sectioned, it may be a yellowish color and of slimy or mucinous consistency. Areas of necrosis and hemorrhage and mucoid degeneration are frequently present and there may be small cystic areas. Virchow, the great pathologist, is said to have been the first to describe this tumor histologically, in 1857. The microscopic features vary tremendously. Abnormal growth of the lipoblasts brings about the development of a lipoma or a liposarcoma. The great majority of liposarcomas are primary tumors, but a small percentage may result from malignant change in an already present lipoma. A case is reported in which liposarcoma was found completely surrounded by the tissue of a benign lipoma. The tumor may be a pure liposarcoma, or areas of myxoid cells or round cells may be found, or combinations of myxoid and fibrosarcomatous areas may be present, as well as areas of osseous and cartilaginous metaplasia.

Stout divides liposarcomas into four classes.

1. The well-differentiated type. It is questionable if these tumors ever metastasize.
2. The poorly differentiated myxoid tumor, which is definitely malignant, difficult to eradicate, and may metastasize.
3. The round cell or adenoid type, which may be difficult to eradicate. The cells are large and massed together in close approximation with only a delicate fibrous stroma.
4. The mixed groups which are extremely malignant.

It should be mentioned that Mallory has stated that the pathologic diagnosis of liposarcoma is unusual, and he is rarely confident in making the diagnosis.

In this connection it is interesting to mention a case recently reported by Heinemann and Lehman which they describe as an example of mesenchymal cell embryogenesis. A tumor of the anterior mediastinum was diagnosed as liposarcoma. In three years the patient died, and examination of the original and the autopsy tumor showed pure liposarcoma while the metastasis showed liposarcoma, fibrosarcoma and chondrosarcoma. According to the authors, this indicated that the tumor was in reality a mesenchymoma.

Liposarcomas may occur at any age although the tumor seems to have its predilection for those in middle life. In the recorded cases it appeared slightly more frequently in males.

The treatment of this tumor is wide surgical excision. The tumor cells may extend far outside of the pseudo-encapsulated mass. Good exposure is essential and simple shelling out of the tumor, as is frequently done in simple lipoma, is not sufficient. In the reported cases, radiotherapy has been employed before surgical attack in some cases and following surgical removal in others. There is little indication that this has halted the course of the disease. In the thirty-five cases followed by Dr. Stout there was local recurrence in 66 per cent and metastasis in 34 per cent. Death has ensued in 37 per cent of the cases followed.

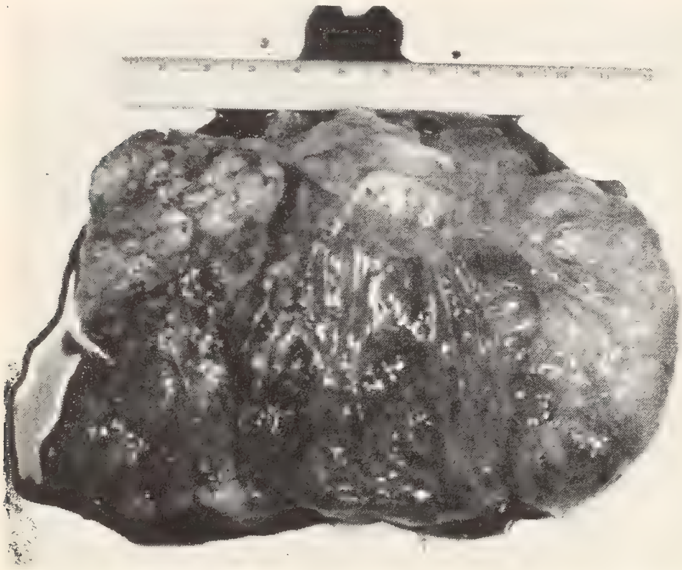

Fig. 1. Gross specimen. Liposarcoma of transverse mesocolon. Segment of attached stomach, the great omentum and segment of transverse colon were removed.

Case Report

A white man, aged fifty-seven, first consulted Dr. Donovan on November 2, 1951. He complained of a gradually enlarging abdomen and of some sharp and dull pains in the abdomen during the preceding two weeks. The patient stated that he had not been feeling well for several months and that his abdomen had been getting larger for about a year. Recently, this increase in size had progressed very rapidly. His appetite had remained good and his digestion was satisfactory. He had had no nausea or vomiting. His bowels moved satisfactorily. He had lost only a small amount of weight. No other symptoms of significance could be elicited.

Physical examination revealed the patient to be a very large man, alert and co-operative. Examination of his eyes, ears and nose gave negative results. The upper teeth had been removed, and the lower teeth were dirty and carious. No glandular enlargement was found. No masses were palpable in the neck. Examination of the heart and lungs revealed them to be essentially normal. Blood pressure was 120/80 millimeters of mercury. The abdomen was very large, rounded and symmetrical. It was flat to percussion. There was a sensation of a nodular mass on the left side. The presence of ascites was suggested. No tenderness was elicited. The lower abdomen seemed to be much softer than the upper abdomen. The genitalia were those of a normal male. Rectal examination was negative.

Laboratory examination revealed the hemoglobin to be 10.20 grams, the erythrocytes 3,700,000, and the leukocytes 8,000 per cubic millimeter of blood.

Radiographic examinations were conducted by Dr. Samuel Miller. On barium enema, the colon was readily filled and the appendix was visualized. There was a rather large mass arising in the mid-abdominal region and displacing the transverse colon downward and posteriorly. This had a uniform homogeneous density suggestive of fluid. Some gas was present in the stomach, and the stomach appeared to be displaced upward and medially. It was concluded that there was a large intra-abdominal mass displacing the transverse colon downward and posteriorly. The diagnostic possibilities were thought to be an omental or pancreatic cyst or a lesion involving the omentum. An examination of the upper gastrointestinal tract was conducted. Both diaphragms were found to be elevated. There was a marked left ventricular cardiac enlargement. The esophagus was normal. The stomach was displaced anteriorly and to the left. The radiologist stated that the findings again suggested either a retroperitoneal lesion or a mesenteric or pancreatic cyst.

The patient was admitted to the hospital and prepared for operation, which was conducted on November 16. Under intratracheal anesthesia a long upper, transverse incision was made. There was a small amount of free fluid in the peritoneal cavity. There was a huge tumor, which occupied the space between the stomach and the colon. It was displacing the stomach upward and the transverse colon downward, but apparently did not arise from either of these structures. General exploration revealed no evidence of metastasis and the liver was everywhere smooth. No glandular enlargement was found. The omentum was dissected away from the transverse colon and reflected upward. This gave access to the huge tumor which was partially cystic and contained a considerable quantity of fluid. The colon was carefully separated from the tumor but it was found that the tumor was a part of the transverse mesocolon and apparentely arose from the transverse mesocolon from which it could not be separated. Our attention was then directed to the stomach which was dissected away from the tumor and it was found that the tumor involved the greater curvature of the stomach. After the dissection was carried as far as possible, it was necessary to remove a wedge of the greater curvature of the stomach. The defect in the stomach was closed with three rows of sutures consisting of fine catgut and finally fine cotton in the serosa. The great omentum was removed in its entirety and the tumor, having been freed from the stomach, was well mobilized. It did not involve the pancreas, which everywhere appeared to be normal. The tumor now was attached to the transverse mesocolon, and by removing a great portion of the transverse mesocolon, the tumor was removed from the patient intact, except for some of the fluid which had leaked out. The mid portion of the transverse colon had been deprived of its blood supply, so approximately 6 inches of colon was removed over the Rankin clamp. The edges of the remaining transverse mesocolon were approximated with a continuous suture of fine chromic catgut. The tumor weighed 10 pounds, so that with the fluid which it contained its weight must have been approximately 18 to 20 pounds. There was no evidence of metastasis to the lymph nodes or to the liver, all of which appeared to be normal. The wound was closed with chromic catgut in layers and with the two loops of bowel being brought out through the mid portion of the wound. During the procedure the patient received some intravenous fluids and approximately 3 units of blood. His condition remained good throughout the operation and he was returned to his room in good condition.

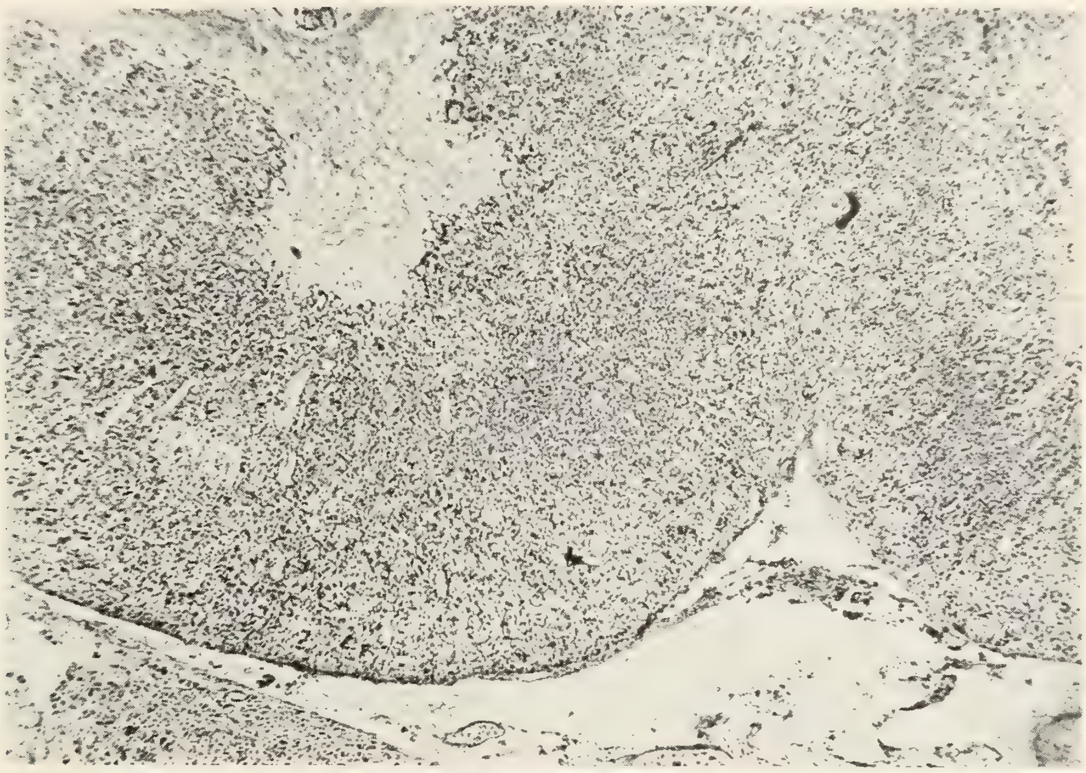

Fig. 2. Microphotograph of representative area of the undifferentiated and highly malignant liposarcoma.

The pathological examination was conducted by Dr. R. W. Koucky. The tumor, after loss of its fluid, weighed 10 pounds. Dr. Koucky described the specimen as follows: "The mass measures 29 by 24½ by 10 cm. and has been previously weighed as 10 pounds. The central part of the mass has degenerated and is replaced with necrotic hemorrhagic material. In the remaining peripheral portions of the tumor there are many other areas of hemorrhage and beginning cystic and mucinous degeneration. The external surface of the tumor is rough and irregular, and apparently the tumor had been adherent within its bed. The surfaces show moderate lobulation. The peripheral part of the tumor is intact, and this has a greyish color and is soft and friable, and occasionally the tumor has developed a yellowish color and in some areas has a mucinous texture. With this there is a large mass of omentum which shows no evidence of implantation and a segment of normal appearing colon about 10 cm. in length. The appendix is also included and shows no evidence of any tumor implants.

"Microscopic sections have been taken from various parts of the tumor. The tumor shows considerable variation in structure in the different portions. In areas there is an extremely active growth of spindle-shaped cells which are so highly undifferentiated that their structure is completely lost. A tremendous number of mitoses appear in this portion. Other areas show a very excellent differentiation of the spindle shaped cells into fat. Sometimes even mature appearing fat cells are seen. The gelatinous parts of the tumor show considerable extra-cellular gelatinous material, and in these areas the tumor is almost like fetal connective tissue. Section of the appendix shows no evidence of any implants.

"Diagnosis: Liposarcoma, grade IV; inactive appendix; segment of colon and mesentery."

The patient was discharged from the hospital on November 26, 1951, feeling well and with his colostomy functioning well. He returned on December 15 for preparation and closure of the colostomy and was discharged again on December 22, 1951. He has remained well to date and has returned to his occupation as a laborer in a meat packing plant.

In conclusion, a case of liposarcoma, presumably arising from the transverse mesocolon, has been reported. These are rare tumors which are extremely malignant and which reach an enormous size. The possibility of malignant change in simple lipomas, although rare, has been mentioned and should be kept in mind when dealing with soft tissue tumors. Liposarcoma is a tumor which

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VALUE OF THE FLAT PLATE (X-RAY) IN DIAGNOSIS OF ACUTE ABDOMINAL CONDITIONS

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IN THE first place I would like to suggest that the term "flat plate" should be abandoned as obsolete and somewhat ambiguous. A much better term in my opinion is "scout film." Other x-ray procedures may be indicated. The most usual added procedure is an upright view of the abdomen. In fact, this is routine in most x-ray laboratories, and I think should always be routine in the investigation of acute conditions of the abdomen.

It is very important to know how to get the most out of the roentgenogram, once it has been taken. Without the clinical data of the case in question, much of the value of the roentgenogram of the abdomen may be completely lost. Consequently, the patient's history, pertinent physical findings, and laboratory findings should be available to the one who is to interpret the roentgenogram. It is important to know about previous operations. It is a well known fact that most cases of small bowel obstruction follow previous operations and that pelvic surgery is the greatest offender in this respect. Another piece of data which should be available to the one reading the roentgenogram is whether or not the patient has had a cleansing enema during the hour or two preceding the x-ray. Usually, when an enema is administered, more or less air is introduced into the distal colon. In case bowel obstruction is being considered, this introduced air may confuse the x-ray findings considerably. If one knows that an enema has been given and that air may have been introduced in this way, it may be allowed for in the x-ray interpretation. Also, it is desirable to know whether or not the patient has recently had any radiopaque medication.

In the interpretation of any kind of x-ray film one should have some kind of routine to follow in order that he will not miss any of the information afforded by the film. In x-ray interpretation it is axiomatic that one sees what he looks for, and it is only by carefully examining all of the features of the film that one will get all the information that it affords. I would suggest that one begin by looking carefully at all of the bony structures: the spine, the ribs, the pelvis, and the hips. The things to look for, of course, are fractures, metastases, and anomalies. An unsuspected fracture or metastasis may explain the whole symptom complex of the patient.

After the bony structures have been examined one should turn to the soft tissue shadows: the spleen, kidneys, psoas muscles, liver, bases of the lungs, diaphragms, and any other organs that are visible. One should attempt to delineate each one of these organs in turn and note any alterations in shape, position, or size. This is a good time also to look for any evidence of gas in the bile ducts which would indicate a communication between the intestinal tract and the gallbladder. Gas under the diaphragms indicative of gastrointestinal perforation is usually visible only on an upright or lateral decubitus film.

The next feature to be evaluated is the calcifications which may be present. In the upper abdomen, most calcifications are related to the rib cartilages and in the lower abdomen the most common calcifications are phleboliths in the pelvis. In older people, various vascular calcifications are common, such as calcifications of the splenic artery, the abdominal aorta, and the large pelvic vessels. The classical case of gallstones is very readily apparent but sometimes gallstones are demonstrated only by very faint calcific rims. Ureteral stones are distinguished from phleboliths by their angular shape. Phleboliths are always round and often hollow in the center, whereas ureteral stones are angular and usually not quite as dense as phleboliths. Various calcific possibilities which may occur are too numerous to mention but they include pancreatic calculi, the presence of teeth in dermoid cysts, kidney tumors, and uterine myomas. From the radiological viewpoint it is a fortunate happenstance that nature introduces calcium into many pathological entities so that they may be identified in this way.

The last feature to be analyzed on the film is the nature of the intestinal gas distribution and it is here that one is most apt to run into difficulties.

Round Table discussion held during the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

It is sometimes very difficult to distinguish an adynamic ileus from an intestinal obstruction. In the classic case of adynamic ileus the gas is rather evenly distributed throughout the small and large bowel. After the period of infancy and early childhood it is not normal for gas to be present in the small bowel. In the classical case of simple intestinal obstruction, gas is present proximal to the lesion and absent distal to the lesion. There are many exceptions and variations, however, to this rule. In an early case of lower small bowel obstruction, the gas which is normally present in the colon may not have had an opportunity to be evacuated as yet and its presence will confuse the picture. In a case of a partial small bowel obstruction some gas will be seen distal to the lesion although it is relatively less than what is shown proximal. In cases of closed loop small bowel obstruction which are among the very common types since they are associated with postoperative adhesions, a small bowel loop becomes twisted in such a way that gas can enter it from the proximal end but cannot find an exit at the distal end. Consequently, the air which is passed from the stomach into the small bowel finds its way into this loop; and gradually this single loop becomes more and more distended, without any gas being present in other small bowel loops. It is only when this effected loop becomes fully distended that the gas begins to pile up in the small bowel proximal to the lesion. These greatly distended isolated small bowel loops very often resemble a portion of the colon and may be difficult to identify. Another confusing feature is that what starts out as an adynamic ileus may turn into an obstruction at some point, so that features of both conditions are present.

From the practical standpoint then, one may justifiably ask the question: just exactly what type of information can be obtained from a scout film of the abdomen? It is assumed that the patient has already been studied from the clinical standpoint and that certain diagnoses are being considered. The x-ray examination may reveal appropriate information so that a single definite diagnosis can be made. On the other hand sometimes certain diagnoses that have been considered may be definitely ruled out. A careful perusal of the roentgenogram may reveal secondary diagnoses which were never thought of in the initial work-up of the patient but which are important in his over-all consideration. One of the best examples of this is the revelation of an unexpected pregnancy. Even where the best medicine is practiced, it happens occasionally that an advanced pregnancy goes entirely undiagnosed until the abdomen is opened. Sometimes the results of the x-ray examination are equivocal. This is particularly true where the distribution of the intestinal gas would be consistent with either an early case of intestinal obstruction or an early case of adynamic ileus. If the rest of the clinical work-up has not contributed a more accurate diagnosis, it is sometimes advisable in these cases to wait several hours and repeat the roentgenograms. Comparison between the two sets of roentgenograms may show which direction one should turn in his interpretation. I suppose the most common roentgen interpretation which is made of abdominal films is that of normal findings. The clinician is then thrown back upon his clinical and laboratory findings and should not be unduly prejudiced by the normal x-ray interpretation. The x-ray interpretation, of course, is a laboratory finding like others, and it must not be allowed to mislead one in his conduct of a given case if other data point very definitely in a different direction.

In summarizing, I would like to reiterate that the scout film of the abdomen can contribute very pertinent information. In its interpretation, a systematic routine should be followed in order that none of its features will be missed; and the one who is interpreting the film should have available the salient clinical data.

PRACTICAL NURSES AND HOMEMAKERS FOR RURAL MINNESOTA

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tinuing in practical nursing. Only one has left the state and she is employed in California.

These graduates feel they have had the advantage of an opportunity to prepare themselves as licensed practical nurses, as future homemakers and as informed active citizens in their respective communities. This combined preparation in practical nursing and home management seems significant in meeting needs that arise in hospitals and situations involving homemaking responsibilities.

President's Letter

MEDICINE'S ANSWER

American organized medicine has answered the challenge. It has worked to produce a system of voluntary health insurance plans throughout America which would serve as an answer to the proponents of government-controlled compulsory health insurance. Those proponents have long challenged medicine to provide better protection against the emergency costs of medical care.

Development of vast numbers of voluntary health insurance plans has been continuing and progressing rapidly during the past few years.

Since 1940, when there were only fifteen voluntary health insurance plans in existence, this development has increased to a point where there are now eighty-four such plans operating in the United States. Every one of these eighty-four plans is sponsored or approved by the medical profession or co-ordinated with local hospital insurance plans.

Over the years voluntary health insurance has progressed as follows: in 1940, six new voluntary plans were established; four in 1941; three in 1942; six in 1943 and 1944; fifteen each during 1945 and 1946; twelve during 1947; two during 1948; five during 1949; four during 1950 and three during 1951.

The growth in enrollment in these voluntary health insurance plans, although not as rapid, has shown a steady increase.

At the end of 1945, 2,840,000 people were enrolled in voluntary health insurance plans sponsored or approved by the medical profession or co-ordinated with local hospital benefit plans. This number increased to five million during 1946. By the end of 1947, 7,300,000 subscribers and dependents were enrolled in these programs. This figure increased in 1948 to 10,600,000. The number enrolled was 14,600,000 by the end of 1949, and almost 20 million persons were protected by December 31, 1950. By December 31, 1951, almost 24 million persons were insured.

In addition, commercial insurance companies and fraternal societies had insured approximately 50 million individuals against hospital, surgical and medical expenses through December 31, 1948.

Growth in numbers of persons protected and number of plans operating does not indicate the full story. It should be noted that this type of protection is subject to almost constant change and development. The basis of payment of many programs has been expanded and the amounts of many benefits have been adjusted to keep pace with economic trends.

This continued increase in enrollment and in the number of voluntary health insurance plans is proof of public acceptance of the idea of preplanning and budgeting some of the costs of illness, injury and disability.

Also, it is striking evidence of the role American medicine has played in continuing to provide more and better medical care for the people of the United States.

It is reasonable to assume that this growth will not stop at this point. However, proponents of government medicine are still active. Organized medicine, and those interested in curbing further government control of private fields, can continue to work for greater progress in this field, for this progress, no matter how impressive, cannot be considered the ultimate answer. Development will continue, for the medical profession will not be satisfied with the status quo.

Roger L J Kennedy

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

BACK DOOR ENTRANCE

JUST as the medical profession had come to feel rather complacent at having apparently averted for the time being, at least, the threat of compulsory government health insurance, there now looms on the near horizon the possibility of a back-door entrance of this highly undesirable proposal by means of our country's various international commitments.

The International Labor Organization which has been in existence some thirty-five years and of which our government is a member, met in conference last June in Geneva, Switzerland, and approved a so-called "convention" on minimum standards of social security. This included medical care, sickness benefits, unemployment benefits, old-age benefits, employment injury benefits, family benefits, maternity benefits, invalidity (disability) benefits, and survivor benefits. A "convention" is in the nature of a treaty and requires a two-thirds vote by the U. S. Senate only for ratification. A county may ratify this ILO convention if it promises to meet at least four of the nine benefit programs enumerated.

This convention stipulates that "a ratifying country may provide a system of compulsory health insurance to take care of its workers." Voluntary health insurance is acceptable only if (1) it is supervised by public authorities or administered by joint operation of employers and workers according to standards set by public authorities and (2) it covers a "substantial part" of persons whose earnings do not exceed those of skilled employees. Medical care benefits under the convention would have to include (1) general practitioner care; (2) specialists' care; (3) essential pharmaceutical supplies; (4) hospitalization.

It would seem that if the convention of the ILO is adopted by the Senate and medical care is one of the four benefit programs specified, we shall have substantially federally controlled medicine.

While it is said that the chances of ratification of this convention by the Senate are at present slight, there is no time limit as to when the convention may be submitted for ratification. The ILO constitution, however, attempts to set a limit by stipulating that a member country shall place the convention before its legislative body not later than eighteen months after the close of the ILO conference at which it was adopted. Physicians will therefore have to be on the alert to prevent the adoption of this convention by the Senate without warning at any time within the next two years.

There is reason for some concern lest certain un-American ideologies become serious threats to our American way of life as a result of our international dealings. This convention on minimum standards of social security approved by the ILO at Geneva, Switzerland, in June is an example. Socialistic policies have dominated the ILO and when it requested and received a statement by a group of consultants from the World Health Organization on the subject of medical provisions which should be included in the proposed convention, the socialistic character of the WHO consultants was evident. They discarded from consideration the concept of fee for service and lauded the salary basis for providing medical care. No practitioner of medicine was included in this group of consultants, and the United States representative was Dr. Henry E. Sigerist, formerly of Yale University and at present a resident of Switzerland. As a result of this statement by the WHO consultants, the Secretary General of the World Medical Association sent a statement by the Council of the World Medical Association opposing the philosophy of socialism and lauding that of private enterprise to ILO members. In spite of this action, the convention favoring assumption of medical activities by the government was recommended by the ILO.

In condemning socialism in general, we equally heartily condemn the ideas which are expressed at times in print condemning nationalism which means patriotism. We trust that the suggestion that history be rewritten, omitting the outstanding accomplishments of countries, our own in particular, in an effort to quell the fervor for patriotism will not succeed. Patriotism is love for one's family and neighbors and will always be a noble passion. Keen as we are for co-operation between nations in the interest of world peace, we are just as firmly opposed to having our way of life altered by foreign countries.

CHLOROMYCETIN AND BLOOD DYSCRASIAS

IN VIEW of the reports which have been appearing in the literature of blood dyscrasias (aplastic anemia, thrombocytopenic purpura, granulocytopenia, and pancytopenia) following the use of chloramphenicol (Chloromycetin), an investigation was undertaken by the Food and Drug Administration of the Federal Security Agency, the National Research Council's Division of Medical Sciences and the manufacturer, Parke-Davis and Company.

A committee of oustanding authorities on hematology and infectious diseases headed by Dr. John Holmes Dingle, Professor of Preventive Medicine at Western Reserve University, Cleveland, Ohio, reviewed the records of some 410 cases of serious blood disorders, of which 177 were definitely known to have been associated with the use of Chloromycetin. In sixty-one of the 177 cases, Chloromycetin was the only drug administered while other drugs had also been given in the remaining 116 cases. In both groups there had been a 50 per cent mortality. A group of sixty-five more cases in which Chloromycetin may or may not have been involved continues under investigation. The number of fatalities is small in view of the 8,000,000 patients who have received the drug.

A report of a special committee of the National Research Council's Division of Medical Sciences of which Dr. M. C. Winternitz is chairman, concludes that serious cases of blood dyscrasias following the use of Chloromycetin are uncommon but of sufficient importance to warrant a warning on the label of the drug against its indiscriminate use or for minor infections. When prolonged or intermittent administration is required, adequate blood studies should be carried out.

In other words, Chloromycetin is a valuable drug but like so many others should be used with care and only where definitely needed. The fact that its use has been associated with a certain number of fatalities does not outweigh its therapeutic value in certain infections. It will still be available on prescription.

MINUTE WOMEN POLITICALLY MINDED

IN our June issue appeared an editorial entitled "Minute Women." Having heard an address by Suzanne Silvercruys Stevenson, we were much impressed by the avowed purposes of the organization known as "Minute Women." We still heartily endorse all of them. Imagine our surprise, however, when Mrs. Stevenson in the *Newsletter* of the organization for June 15 came out strongly for two candidates for the presidency and as strongly opposed others—this by the head of an organization which claims to be a "nonpartisan group." We were not too surprised therefore, to learn in the letter sent out under date of August 11 by the Minute Women that Suzanne Stevenson is disassociating herself temporarily from the organization in order to accept the position of co-chairman and treasurer of the new political party recently formed in Chicago and more recently named the Constitution Party. Apparently Mrs. Stevenson was unable to keep herself and the Minute Women out of politics. She is correct in severing her relations with the organization but should have refrained from utilizing the organization's *Letter* for voicing her political preferences. We shall be interested to observe whether Minute Women will adhere in the future to its claim of being non-partisan in character.

THE HOSPITAL DOLLAR

The following is a condensation of a talk given by Mr. George Wood, administrator of Peralta Hospital, to members of the Medical Staff. Mr. Wood was asked to make his manuscript available to the Editorial Board for publication in this issue of the BULLETIN.

"This bill is terrible, and I'm not going to pay it!" The hospital cashier was having a bad time with the husband of a patient. "How can you expect a working man like me to pay $128 for three days of care? What we need is hospitals run by the government."

The man's wife had been brought into the hospital for an emergency appendectomy three days before. The bill, broken down, covered $52.50 for the room for three days, $60.00 for the surgery, $10.50 for routine laboratory, and $5.00 for drugs, et cetera.

The man did pay the bill finally—a little sheepishly and shamefacedly, after he was favored with a cool and friendly analysis of the charges and a comparison of them with his own economy.

The man was a plumber. He was asked, first, if the service his wife had received was satisfactory, and he agreed that the meals were good, the linen was clean, the nurses were courteous, competent, the hospital was obviously carefully and effectively operated in every way. He had no complaint as to the prompt and competent treatment of the patient.

"What would it cost the hospital," he was asked, "if you were to provide it with plumbing service over a continuous three-day period?"

(Continued on Page 877)

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

LIVING COSTS MORE THAN MEDICAL CARE

According to a recent release by the American Medical Association Bureau of Medical Economic Research, the index of the prices of all items in the consumers' budget has risen almost twice as many points as the price of medical care. The report, presented by the bureau's director, Dr. Frank G. Dickinson, states:

> "The Consumers' Price Index rose 13.7 points in 1951, and the index of medical care and drugs rose 7.1 points. In 1951, the Consumers' Price Index reached an all-time high of 185.6 while the index of the prices of medical care and drugs stood at 155.0. While the Consumers' Price Index has been considerably higher than the index of medical care prices in recent years, the spread between the two indexes became even more pronounced during 1951. The Consumers' Price Index had risen 86% since the base period, while the cost of medical care rose only 55%. In terms of purchasing power of the consumer dollar, medical care was 16% cheaper in 1951 than in 1935-1939, that is, 155.0 is 84% of 185.6."

The article went on to explain that the Consumers' Price Index is a widely used index of prices of goods and services in the United States. The report says that "the Consumers' Price Index, which is compiled by the U. S. Bureau of Labor Statistics, measures monthly the changes since 1935-1939 in the prices of fixed quantities of goods and services normally purchased by moderate-income families in large cities. The indexes of the medical care items are a small part of the entire index. This index is considered our best general measure of the purchasing power of the consumer dollar and is widely used to determine wages in labor negotiations."

Item Prices Noted

The Bureau report expands its discussion of medical care prices by reporting individual item changes during the past year. It lists separate items as: "the index of medical care excluding drugs was 160.9 in 1951 and the index of prescriptions and drugs, 128.4. The index of physicians' fees (general practitioner, surgeon, and specialist) was 145.2; of general practitioners' fees, 145.2; and of surgeons' and specialists' fees, 144.3. The index of dentists' fees was 160.0 and of hospital rates, 260.7. The price index of group hospitalization, which was recently added to the items priced by the Bureau of Labor Statistics (December, 1950—100), was 103.1 in 1951; thus group hospitalization (Blue Cross premium rates) rose 3.1% during 1951, the first full year covered by this newly added index."

The report emphasizes that with the exception of hospital rates, the indexes of each medical care item were considerably below the Consumers' Price Index. In fact, it is seen that if the hospital portion of the index of medical prices were excluded, this index would be even lower than the reported level of 155.0.

Hospital Costs Interpreted

Because hospitals are buyers of large quantities of food and labor, the report stated that they feel the full impact of inflationary forces: "They must adjust their rates to cover the vastly increased cost of the materials they purchase. The hospital's costs are not stabilized by such customary accounting items as depreciation and taxes, because most hospitals are charitable institutions."

Dr. Dickinson also noted that the hospital index may also be uniquely affected by the choice of the base period. He says:

> "While 1935-1939 is considered a relatively normal period by most economists for the purpose of general comparisons, in the case of hospitals it may have some shortcomings. For example, the shortening of the nurses' working day to eight hours, which would considerably affect the labor costs of hospitals, was not fully realized until after 1935-1939. . . . The index of hospital prices is for room rates only. The prices of laboratory and other services are not sampled. The index of prescriptions and drugs does not cover any of the 'wonder drugs' of recent years."

CONGRESS TRIMS PUBLIC HEALTH BUDGET

The slow process of obtaining funds by federal appropriation, and the many congressional and committee storms an appropriation bill must weather, are seen in the United States Public Health Service budget for fiscal 1953. The amount granted by Congress, although lower than current year expenditures, is enough to keep programs going at about their present pace.

According to a recent article in *Modern Medicine* the budget is a fair example of the amount of money Congress is willing to spend on health activities, such as grants to states and federal research and educational work. The article states, "This year all Public Health Service spending will total around $348.5 million. When, last fall, PHS officials started conferring with Budget Bureau officials on next year's budget, they asked for a considerable increase, although they are not permitted to disclose just how much. But the Budget Bureau decided that, everything considered, PHS should not spend more than $302.5 million in the next fiscal year. That was the total of requests the Bureau allowed to be submitted to Congress."

The article described the next process:

> "Next, subcommittees of the House Appropriations Committee called PHS officials up on Capitol Hill to justify individual budget items, one at a time. When this generally painful process was concluded, the full committee looked over the resulting figures and set a maximum expenditure of $280 million, a reduction of about 8% from the Budget Bureau figures."

After House passage of the budget, the figure was $800,000 short of the original amount. But, the article stated, "the experienced men knew that all was not lost; there was still the Senate."

Senate Increases Figure

Eventually the Senate Committee made an independent estimate of what the PHS should have to spend—$283 million, an increase of several percentage points over the House figure.

It is interesting to note that the Senate Committee voted substantial increases in funds for cancer and heart disease research and grants. The article comments: "Some persons who have watched the process for years believe there's a relationship between these particular annual increases and the hope of some senators that cures will be perfected in time to save them personally. Whatever reasons the senators may have, funds for cancer and heart work were increased a total of more than $5 million."

The House and Senate comparative figures read thusly:

Cancer Institute—$15,371,000 asked, $15,250,000 approved by the House Committee and House; $17,887,000 approved by Senate Committee.

Heart Institute—$9,749,000 was asked, $9,600,000 approved by the House Committee and House; $12,000,000 approved by Senate Committee.

The Senate Committee also recommended $195,000 more than the House for mental health work and $50,000 more for the National Institutes of Health.

The ease with which the Senate seems to be able to appropriate funds for health and health research purposes, would indicate these things: possibly they are extra anxious to have health standards continue to improve above the present high level; and/or they would be equally vulnerable to arguments requesting increased appropriations to run compulsory health insurance, should such a thing occur in this nation. The medical profession will do well to keep an ever-watchful eye on such impressionable people as our senators and representatives have proven themselves to be.

NATIONAL HEALTH PLAN SPONSORED BY UNION

Proving that the issue of compulsory national health insurance is not dead, the recent 18th biennial convention of the Amalgamated Clothing Workers of America has passed a national health insurance resolution.

The labor union takes cognizance of, but doubts the value of, the progress made in the nation's health under the present voluntary system of doing things. It says that despite the tremendous advances in medical science achieved in recent years, the health needs of this nation have not been met. There are too few doctors, nurses, hospitals, clinics and medical schools, the group asserts, and the cost of these services makes it impossible for a great many Americans to obtain adequate medical care.

And then it advocates blindly the system that will stymie the present progress of medical science. It states:

> "Resolved, that the 18th biennial convention of the Amalgamated Clothing Workers of America (1) Calls upon Congress to pass legislation establishing a nation-

wide health insurance program which will provide the people of our nation with the needed medical services, facilities and personnel. (2) Urges the passage of a federal assistance program to professional medical and nursing schools through scholarships and grants to students . . ."

THE MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

SUPREME COURT OF MINNESOTA DECLARES VITAMINS TO BE DRUGS AND MEDICINE

Re. Milton Culver doing business as Culver's Food Market vs. John Nelson, John J. Pastenacki, Victor E. Feit, J. Norman French, B. A. Deterling and F. W. Moudry. (Minnesota State Board of Pharmacy.)

The Supreme Court of Minnesota, in a unanimous decision, has held that pure and concentrated vitamins or combinations of pure and concentrated vitamins, natural or synthetic, carried in an excipient, solid or liquid, and offered for sale as tablets, capsules, or in liquid form, are drugs within the meaning of the laws of the State of Minnesota. The lawsuit was instituted by a grocer, Milton Culver of the City of Saint Paul, Minnesota, who sought a declaratory judgment to determine his right, and those similarly situated, to sell at retail, tablets, capsules or liquids, containing vitamins, in their original packages as prepared by the manufacturer or distributor. The case was first tried in the District Court of Ramsey County before the Hon. Albin S. Pearson who held that the plaintiff had no right to sell such vitamins. An appeal was taken to the Supreme Court of Minnesota by the plaintiff.

In its decision the Supreme Court of Minnesota also held that such vitamins are not common household preparations sold exclusively for nonmedicinal purposes. The Supreme Court, likewise, held that such vitamins are not excepted from the operation of the laws of the State of Minnesota as being non-habit forming, harmless proprietary medicine. Lastly, the Court held that such laws are not in violation of the constitution of the State of Minnesota. In its decision the Supreme Court stated:

> "The opinion of the many eminent specialists in the field of medicine and chemistry called by defendants is that the vitamin products here involved are drugs. We conclude that they meet all the requirements under the definition of a drug in our statute."

The decision of the Supreme Court makes it clear that under the laws of the State of Minnesota the sale of vitamins is restricted to licensed and registered pharmacies and to licensed and registered doctors of medicine. From a public standpoint, the decision is extremely important and will be heartily approved by the medical profession as well as the pharmaceutical profession. The State of Minnesota was represented in the case by the Hon. J. A. A. Burnquist, Attorney General, and by George B. Sjoselius, Deputy Attorney General.

THE HOSPITAL DOLLAR

(Continued from Page 874)

"Plumbers rates are $22.00 for an eight hour day," he replied.

"What about the two night shifts?" he was asked.

"Those would be at double time. That would be $44.00, each."

"So the cost for one day of constant attendance by one plumber would be $110.00."

"That's right. And for three days, it would be $330.00."

"And that's for wages alone. It doesn't include material. It takes more than 400 full-time employes to operate Peralta Hospital—2½ employes for every patient, or 5/6ths of one person's efforts, around the clock, for your wife. In addition to this time, the hospital supplied food, linen, medication, surgical equipment, laboratory services, telephone services, dressings and techniques and skills which are at least as specialized as those of a skilled trade such as yours. In addition, the hospital assumed a tremendous responsibility for the safety of your wife."

There was a pause. "Do you still think your bill is too high?"

"For the first time," he said, "someone has taken the time to explain hospital charges to me, in language I can understand."

As gracefully as he could, the husband went out and paid his bill. He left with a good feeling.

The incident inspired some further analysis of comparative hourly costs of hospitalization compared with going rates among skilled trades. An electrician's rate per hour is $2.75, a machinist's $2.41, a teamster's $1.81, a laborer's $1.70. An analysis made of 70,516 patients admitted to Bay Area Hospitals during 1951 represented 374,027 patient days, or 8,976,648 hospital hours. Total money paid by these 70,516 patients was $10,003,042, a cost of $1.11 per hour, for all hospital services, including laboratory, surgery, et cetera.

The prevalent public misunderstanding of hospital charges is a good example of our failure in communications.—Reprinted from the *Bulletin of the Alameda-Contra Costa Medical Association,* June, 1952.

HOSPITALS CLOSED FOR LACK OF FUNDS

The Public Health Service is being forced to close four of its general hospitals as a result of Congressional cuts in Veterans Administration appropriations, Oscar R. Ewing, Federal Security Administrator, announced recently. He explained that funds cut would have provided contract care for Veterans Administration patients in Public Health Service hospitals.

The hospitals, located in Kirkwood, Missouri, Mobile, Alabama, Portland, Maine, and San Juan, Puerto Rico, will discontinue admitting patients within a few days and will be converted to outpatient clinics as soon as provisions can be made for their present patients.

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, stated that this unexpected cut amounts to about $1.5 million and requires a reduction from 650 to 375 in the number of Veterans Administration patients cared for by the Public Health Service.

Patients in Public Health Service hospitals include American merchant seamen, officers and enlisted men of the Coast Guard, Federal employes injured in line of duty, and others for whom the Service is responsible under law.

AMERICAN MEDICAL ASSOCIATION

House of Delegates—Summary of Proceedings

Chicago—June 9-13, 1952

The House of Delegates convened on Monday, June 9, in the Red Lacquer Room of the Palmer House, Chicago, and was called to order by the Speaker, Dr. F. F. Borzell, at 10 a.m.

After preliminary proceedings including the invocation, the roll call and adoption of proceedings of the clinical session in Los Angeles, the House elected a Vice Speaker, Pro Tem, in the absence due to illness of the regular Vice Speaker, Dr. James R. Reuling. Dr. E. Vincent Askey of California was elected. Dr. Paul Dudley White of Boston was elected to receive the Distinguished Service Award.

The House then heard the address of the Speaker which paid tribute to the high quality of men comprising the House of Delegates and the fine work they are doing. The Speaker then read the names of members of reference committees.

The address of the President, Dr. John W. Cline, was then heard by the House. Presenting a résumé of the past year's accomplishments, Dr. Cline stated that American medicine is "stronger, more unified and better able to prevent the destruction of the high standards of medical care inevitable in socialistic schemes."

The Speaker then presented to the House the President-Elect, Dr. Louis H. Bauer, and Dr. Ernest E. Irons, Past President, who presented invited guests.

President's Commission

The House considered a resolution regarding the President's Commission on Health Needs of the Nation, and after considerable discussion passed the following resolution: WHEREAS, The House of Delegates for many years has clearly enunciated principles of policy for dealing with problems concerning the health needs of the Nation; and WHEREAS, the Officers and Board of Trustees of this Association have diligently followed these principles; now therefore be it RESOLVED, That the conduct of the officers and Board of Trustees regarding the President's Commission is a re-affirmation of the principles subscribed to by the vast majority of the members of the American Medical Association.

Report of Board of Trustees

Dr. Dwight H. Murray, Chairman of the Board of Trustees, presented his report. He reported that the Association will have a decrease in revenue of approximately $250,000 from discontinuance of the Fellowship classification. His report also included recommendations and discussions of: deferment of students, reactivation of the Fellowship classification to include donors to the American Medical Education Foundation, tax deductions for postgraduate study, certain legislation of the 82nd congress, fluoridation of public water supplies, the "Legislative Review," the invitation for the 1955 convention, civil defense, honoraria for president and president-elect, Advisory board to Board of Trustees, Advisory Committee on Policy, Washington property, local health councils, dues for 1953, uniform types of membership, Health Home Council, case finding methods, general practitioner's award, S. 1140, certification of clinical psychologists, H. R. 7800.

The report was referred to proper reference committees. The report was discussed section by section. Approval was given to the Board's recommendation of a $50 a day honorarium for the president and president-elect in handling Association business, broadening the scope of the Advisory Committee on Policy, continued search for suitable property in Washington for permanent headquarters for the Washington office, $25 dues for 1953.

The Reference Committee on Medical Military Affairs approved the Board's recommendation pertaining to coordination between the Federal Civil Defense Administration and military organizations.

The Reference Committee on Miscellaneous Business recommended that the Board of Trustees be authorized to appoint a committee to study the problem of uniform types of membership. The committee concurred in the Board's recommendation that the House be freed from the responsibility of electing the outstanding general practitioner of the year.

The Reference Committee on Hygiene and Public Health approved the Board's request in regard to setting up a Health Home Council and added two minor changes and outlined some basic requirements.

The Reference Committee on Insurance and Medical Service approved the Board's acceptance of a proposal to encourage development, in offices of physicians, of case finding methods for tuberculosis, of a type even more effective than the services provided by voluntary health agencies and departments of public health in mass surveys. The committee takes cognizance of the work done by the Board-appointed committee on Federal Medical Services. Final reports of this committee will be heard at the December interim session.

The Reference Committee on Legislation and Public Relations concurred in approval of the resolution favoring establishment of a federal board on hospital services to determine the need and location of proposed new federal hospitals.

The Reference Committee on Medical Education and Hospitals recommended disapproval of a resolution to foster establishment of state boards for certification of clinical psychologists.

The Reference Committee on Legislation and Public Relations favored adoption of resolutions relative to a proposed amendment to the U. S. Constitution prohibiting making of any treaty or executive agreement which is in conflict with the Constitution or which may operate to regulate any of the purely domestic affairs of the United States.

After the Speaker introduced the delegates from the Student American Medical Association, the House heard the report of the American Medical Education Foundation, presented by Dr. Elmer L. Henderson, the Foundation's president. Dr. Henderson reported that the sum contributed so far by individual physicians is $121,000.

Dr. Elmer L. Henderson then presented the report of the Co-ordinating Committee, and this was approved by the House.

The report of the Reference Committee on Amendments to the Constitution and By-Laws was approved by the House, adopting changes making single membership classification a part of the constitution, and restricting terms of office of members of standing committees.

The report of the Council on Medical Education and Hospitals was read by Dr. H. G. Weiskotten, and approved by the House.

The report of the Committee on Blood Banks was read by Dr. Herbert P. Ramsey, Co-Chairman, which was approved and commended. It reported progress on blood procurement programs and related fields.

The House approved a resolution commending the heroic efforts of Dr. Walter H. Roehll in helping passengers of the train stalled in the Sierras last winter.

The House adopted a resolution requiring the records of the Judicial Council to be made into a permanent file, for availability to the membership on discretion of the editors of the *Journal of the American Medical Association.*

The House adopted a resolution requiring provision of Alternate delegates with badges for House sessions.

The House resolved to request the Council on Constitution and By-Laws to study and re-evaluate the Principles of Medical Ethics and report back its recommendations.

The House approved a resolution condemning the International Labor Organization's proposal to provide full-time salaried medical service to the United States as socialized medicine.

The House adopted a resolution reaffirming its previous stand that Negroes be admitted to medical societies where discrimination had been practiced. Progress was noted in this respect in the resolution.

The House approved a resolution supporting the Reed-Keogh bills which provide for establishment of retirement plans for the self-employed.

The House recommended that the Board of Trustees restudy the method and amount of compensation paid to state societies for the collection of AMA dues after consultation and conference with the organization of secretaries and officers of state societies.

The House adopted a resolution disapproving of the policy of veterans hospitals of accepting non-service-connected disability cases.

The House adopted a resolution changing the By-Laws to include the Section Delegate in the Executive Committee of the Section.

The House adopted a resolution requiring payment of expenses of Section Delegates in representing the Section at the House of Delegates meetings twice annually.

The House adopted a resolution approving transfer of seriously disabled veterans from service hospitals to Veterans Administration facilities.

The House referred to the Board of Trustees a recommendation for reactivation of the Committee on Motor Vehicle Accidents.

The House recommended adoption of the resolution stating that the American Medical Association does not support any political party or any candidate for elective public office.

The House approved resolutions amending the By-Laws to change the date of deciding on the apportionment of delegates from state associations from December 1 to December 31 of each year, and a provision allowing a duly elected delegate or alternate to finish his unexpired term even though that state's delegation apportionment has been reduced.

The House approved a resolution requiring a restudy by the Council on Medical Education and Hospitals of the policy of establishing residencies and internships toward correcting the imbalance between the large number of established internships and residencies and the small number of physicians available to fill them.

The House adopted a resolution recommending that the Veterans Administration be required to furnish a form or signed statement for eligibility to pay for services rendered by the VA.

The House adopted a resolution recommending an amendment to the Constitution of the United States which would limit the taxing power of the federal government.

The House then heard a few brief remarks from Dr. Ernest E. Claxton, Assistant Secretary of the British Medical Association. Dr. Claxton stated, "I believe that medicine's role and destiny in this atomic age is to give the nations of the world the answer, the secret of living together, that medicine can be an inspiring, uniting and cleansing force in the nations, and that we move from treating sick people to treating a sick world."

Dr. John M. Galbraith, President of the Nassau County, New York, Medical Society, presented Dr. Louis H. Bauer with a gavel.

The House heard the supplementary report of the Board of Trustees presented by Dr. Dwight H. Murray, Chairman. Approval was given to opposition to any regulation which would allow intern service to count against total military and reserve obligation; and approved a posthumous Citation for Distinguished Service to Mr. Howard W. Blakeslee, science editor for the Associated Press.

The House heard a telegram from Mr. Millard Caldwell, Federal Civil Defense Administrator, commending the American Medical Association for the development of its excellent and far-reaching program of civil defense medical preparedness.

Dr. Elmer L. Henderson, president of the American Medical Education Foundation, received for the Foundation a $10,000 check from the Woman's Auxiliary to the American Medical Association.

The House adopted a resolution officially expressing commendation and heartfelt thanks to Dr. Cline for his devotion to the ideals of the profession and his real contributions toward its advancement.

The House adopted a resolution urging the Advisory Board of Medical Specialties to take action so that participation in emergency medical service should not prejudice the standing of a physician with a specialty board.

Dr. Gunnar Gundersen, Chairman of the Joint Commission on Accreditation of Hospitals, presented Dr. Edwin L. Crosby, Baltimore, newly chosen director of that commission.

The House unanimously adopted a resolution condemning the passage of H. R. 7800 as a breach of faith by the administration with those who would benefit from this bill in a flagrant attempt to railroad through a provision to aid in the socialization of medicine which could not possibly be adopted if considered openly and fairly.

Election of officers followed:

President-Elect—Edward J. McCormick, M.D., Toledo, Ohio
Vice President—Leo F. Schiff, M.D., Plattsburg, New York
Secretary—George F. Lull, M.D., Chicago
Treasurer—J. J. Moore, M.D., Chicago
Speaker, House of Delegates—James R. Reuling, M.D., Bayside, New York
Vice Speaker, House of Delegates—E. Vincent Askey, M.D., Los Angeles, California

The House elected Drs. Dwight H. Murray, Napa, California, and James R. McVay, Kansas City, Missouri, as members of the Board of Trustees.

Dr. Homer L. Pearson, Jr., Miami, Florida, was elected as a member of the Judicial Council.

Dr. Stanley P. Reimann, Philadelphia, Pennsylvania, was elected as a member of the Council on Scientific Assembly.

The House elected the following members of the Council on Medical Education and Hospitals: Dr. Herman G. Weiskotten, Skaneateles, New York; Dr. John W. Cline, San Francisco, California; Dr. James M. Faulkner, Boston, Massachusetts; Dr. Charles T. Stone, Sr., Galveston, Texas; Dr. Leland S. McKittrick, Boston, Massachusetts.

Elected to the Council on Medical Service were: Dr. Elmer L. Hess, Erie, Pennsylvania; Dr. Carlton E. Wertz, Buffalo, New York; Dr. James Q. Graves, Monroe, Louisiana.

Dr. James Stevenson, Tulsa, Oklahoma, was elected a member of the Council on Constitution and By-Laws.

The House voted to accept the invitation to hold the Annual Session in Atlantic City, N. J., in 1955.

The following were elected as Affiliate members: Dr. Theodore F. Braun, Columbus, Ohio; Dr. John A. Cremer, Dembi Dollo, Ethiopia; Dr. Burton C. Dyson, Hamadan, Iran; Dr. Ivanoel Gibbins, Ambala City, Punjab, India; Dr. Paul Stayer Hoover, Bulsar, Surat District, India; Dr. John F. Sheldon, Salisbury, Southern Rhodesia, Africa; Frederick Gudernatsch, Ph.D., Sc.D., New York.

Dr. Edward J. McCormick, newly elected president-elect, then addressed the House, and pledged to do everything in his power for American medicine and for the preservation of the democracy which has made this country the greatest country in the history of the world.

Dr. F. F. Borzell, retiring Speaker of the House, expressed his extreme appreciation for the courtesies that had been shown to him. The House gave Dr. Borzell a rising vote of thanks.

After extending thanks and cordial greetings to the Chicago Medical Society and the Illinois State Medical Society for the hospitality and fine treatment received at the meeting, the House of Delegates adjourned at approximately 4:40 p.m., June 12, 1952.

George A. Earl, Saint Paul
J. Arnold Bargen, Rochester
W. W. Will, Bertha
Delegates to the American Medical Association

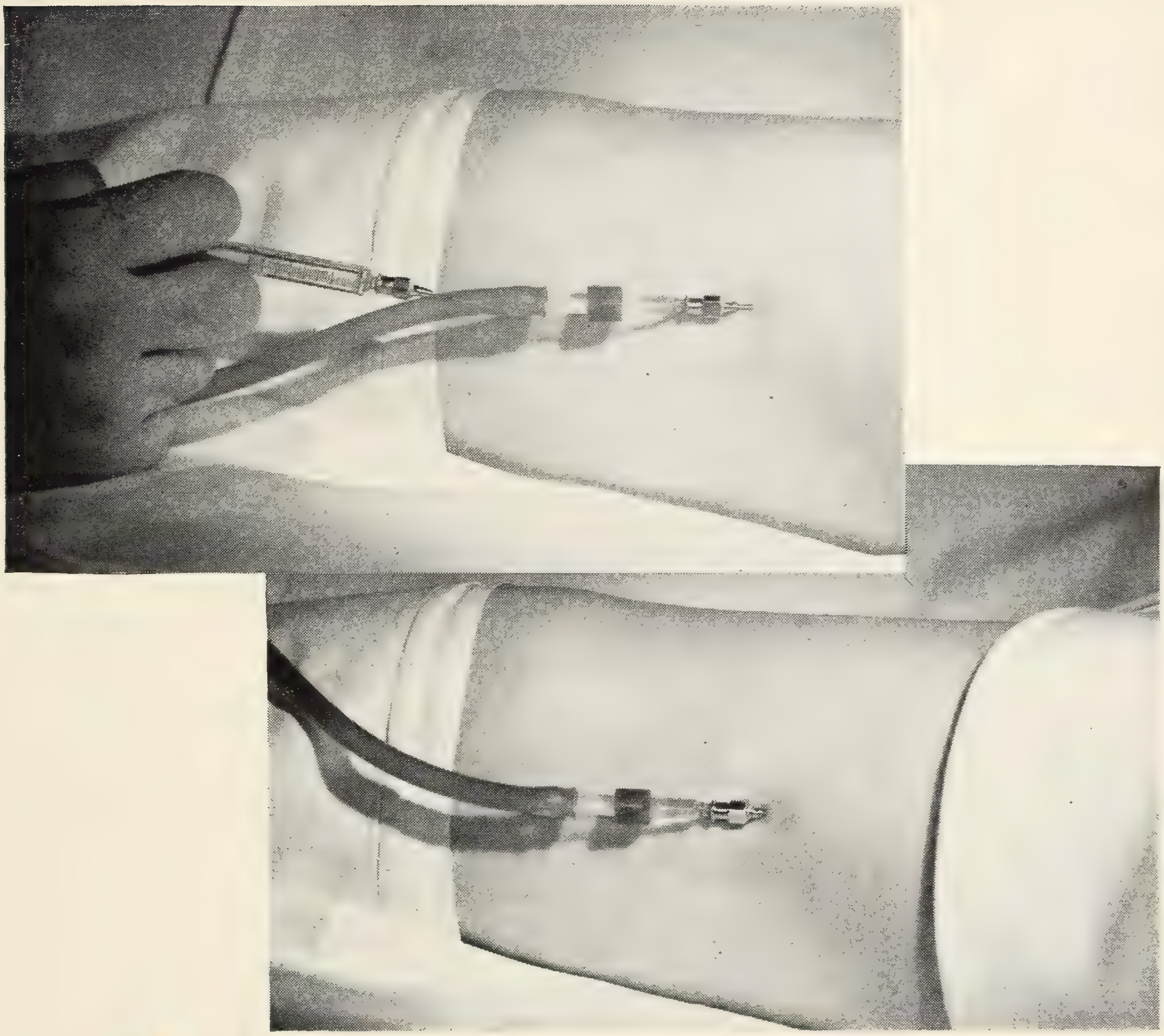
LIPOSARCOMA OF THE TRANSVERSE MESOCOLON

(Continued from Page 869)

should be kept in mind when one is confronted with tumors of soft tissues in the regions in which fat is normally deposited.

Bibliography

1. Abrams, M. J., and Tuberville, J. S.: Liposarcoma of the stomach. South. Surgeon, 10:891, 1941.
2. Ackerman, L. V.: Multiple primary liposarcoma. Am. J. Path., 20:789-798, 1944.
3. Ackerman, L. V., and del Regato, J. A.: Cancer—Diagnosis, Treatment and Prognosis. Chapt. 17, pp. 1014-1027. Sarcomas of soft tissues. St. Louis: C. B. Mosby Co., 1947.
4. Ackerman, L. V., and Wheeler, P.: Liposarcoma. South. M. J., 35:156, 1942.
5. Cabot Case 28052: Liposarcoma of thigh. New England J. Med., 226:204, 1942.
6. Daly, J.: Liposarcoma; report of a case. Texas State J. Med., 39:332, 1943.
7. Flynn, J. M.: Retroperitoneal liposarcoma with myxomatous degeneration. Radiology, 35:90, 1940.
8. Froug, C.: Liposarcoma of the kidney; review of the literature and case report. J. Urol., 45:290, 1941.
9. Heinemann, M. W., and Lehman, W. L.: Mediastinal mesenchymoma masquerading as liposarcoma. Cancer, 4:692-696, 1951.
10. Levinson, L. J.: Sarcoma of the soft parts. J. M. Soc. New Jersey, 45:76, 1948.
11. McCormick, N. A.: Liposarcoma; case report. Radiology, 47:500, 1946.
12. Moreland, R. B., and McNamara, W. L.: Liposarcoma. Arch. Surg., 45:164, 1942.
13. Murray, M. R., and Stout, A. P.: Characteristics of liposarcoma grown in vitro. Am. J. Path., 19:751-763, 1943.
14. Perkins, C. W.: Liposarcoma of the mediastinum and lung. Am. J. Roentgenol., 42:341, 1939.
15. Stout, A. P.: Liposarcoma—the malignant tumor of lipoblasts. Ann. Surg., 119:86, 1944.
16. Stout, A. P.: Pathology and classification of tumors of the soft tissues. Am. J. Roentgenol., 66:903-909, 1951.
17. Williford, H. B., and Fatheree, T. J.: Primary liposarcoma of the bone. U. S. Nav. M. Bull., 46:1750, 1946.



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SEARLE

RESEARCH IN THE SERVICE OF MEDICINE

In Memoriam

DAVID DERRICK ANDERSON

Dr. David D. Anderson, a native of Minneapolis, and since his graduation from the University of Minnesota Medical School in 1920, a practitioner there, died July 31, 1952 at the age of sixty-two.

Dr. Anderson was born September 19, 1889. He interned following his graduation at the City and County Hospital in Saint Paul and in the Swedish Hospital in Minneapolis. Staff memberships were held in Swedish and Mount Sinai Hospitals. In 1936, he made a trip to Vienna for postgraduate work.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association and of the American Academy of General Practice. He served on the board of deacons of the First Evangelical Free Church in Minneapolis for more than twenty years.

Dr. Anderson is survived by his wife, Signe, a son, David, and a daughter, Patricia. His father, Albert J. Anderson, two brothers and two sisters also are living.

MELVIN W. BINGER

Dr. Melvin W. Binger, a member of the Mayo Clinic staff from 1930 to 1946, died at his home in Chattanooga, Tennessee, on July 26, 1952.

Dr. Binger was born October 27, 1896 at Crete, Nebraska, and received a B.A. degree *cum laude* from Doane College in Crete in 1921. Degrees of B.S., M.A., and M.D. were obtained from the University of Nebraska in 1923, 1924 and 1926, respectively. Dr. Binger came to the Mayo Foundation in 1926 and was appointed to the staff of the Mayo Clinic in 1930. He had become an associate professor of medicine in the Mayo Foundation when he left for Chattanooga in 1946.

Dr. Binger had been certified as a specialist in internal medicine by the American Board in 1937. He was a member of the Central Society for Clinical Research, Sigma Xi and of the Tennessee State Medical Association and the American Medical Association.

Dr. Binger married Joy A. Hoffhine in 1927. They were divorced. Three sons: William, Richard, and Charles, and one daughter, Patricia, all of Rochester, survive him.

ARCHIBALD HILDRETH BEARD

Dr. Archibald H. Beard, a well-known internist of Minneapolis and best known for his interest in diabetes, died August 14, 1952. He was sixty-two years of age having been born in Pueblo, Colorado, May 13, 1890.

He received the degree of B.A. from the University of Kansas in 1910 and an M.D. degree from Harvard Medical School four years later. He interned at the Boston City Hospital in 1914-15, the Massachusetts General Hospital in Boston from March, 1915 to August, 1916. He was a resident at the University Hospital of Minneapolis from August, 1916, until September, 1917. He was a full-time instructor in Medicine at the University of Minnesota from 1916 to September, 1917, and was on the staff of Base Hospital 26 from 1917 to 1919. Postgraduate work was taken in tuberculosis at the Trudeau Sanatorium at Saranac Lake, New York, in 1925-26 and further postgraduate study for six months in Europe in 1928-29.

Dr. Beard was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of the American College of Physicians and had served as chairman of the Committee on Health and Medical Care of the Minneapolis Community Chest. He was an elder at Westminster Presbyterian Church, a member of the Minneapolis Athletic Club, Masons and Scottish Rites. He also belonged to Sigma Alpha Epsilon, Nu Sigma Nu and Sigma Xi fraternities.

Dr. Beard married Amelia Hartman, who with a son, Archibald, and a daughter, Mary, survives him.

DAVID KNOX CALDWELL

Dr. David Knox Caldwell of Saint Paul died August 12, 1952, at the age of seventy-four.

Dr. Caldwell was born in Berlin, Illinois, March 30, 1878. He graduated from Hamline University in 1899 and taught school for two years before returning to Hamline University to study medicine. He had practiced in Saint Paul since 1907.

Dr. Caldwell is survived by his wife and two daughters: Mrs. T. J. Quick of the Island of Guam and Mrs. James Vaughn of Los Angeles.

EVERETT C. GAINES

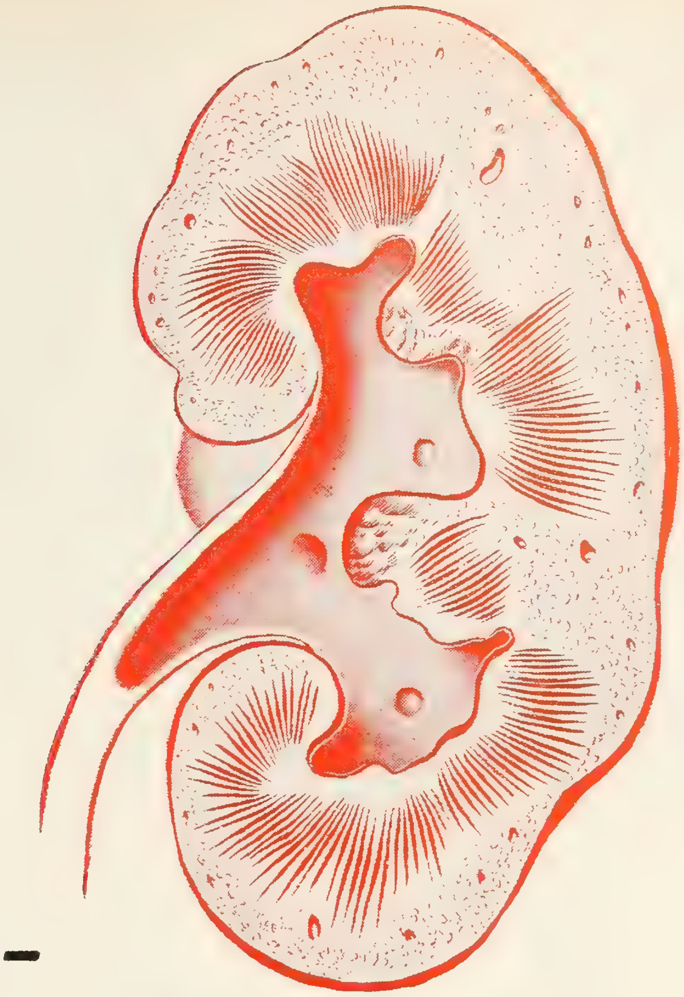
Dr. E. C. Gaines, a beloved and respected resident of Buffalo Lake, Minnesota, tragically lost his life in an automobile accident August 15, 1952. He was seventy-nine years old and had practiced more than fifty years at Buffalo Lake.

Dr. Gaines was born in Minneapolis, January 31, 1874. He attended public schools in Minneapolis and received his medical degree from the University of Minnesota in 1899. While at the University, he won some distinction as an athlete on the track team. He took postgraduate work at the University of Chicago in 1912.

Dr. Gaines was an outstanding example of a general practitioner beloved by his community. In 1950, on the occasion of his having practiced in Buffalo Lake for fifty years, he was tendered a banquet by seventy-five of his friends and in the evening he and Mrs. Gaines were honored by a get-together in the High School of some 1,000 acquaintances. The celebration was attended by some of his former associates including Dr. Stephen Baxter of Minneapolis and Dr. Walter Sahr of Hutchinson. The gathering was addressed by Dr. Ernest M.

(Continued on Page 884)

attain the goal in acute urinary tract infections– ***quickly...***



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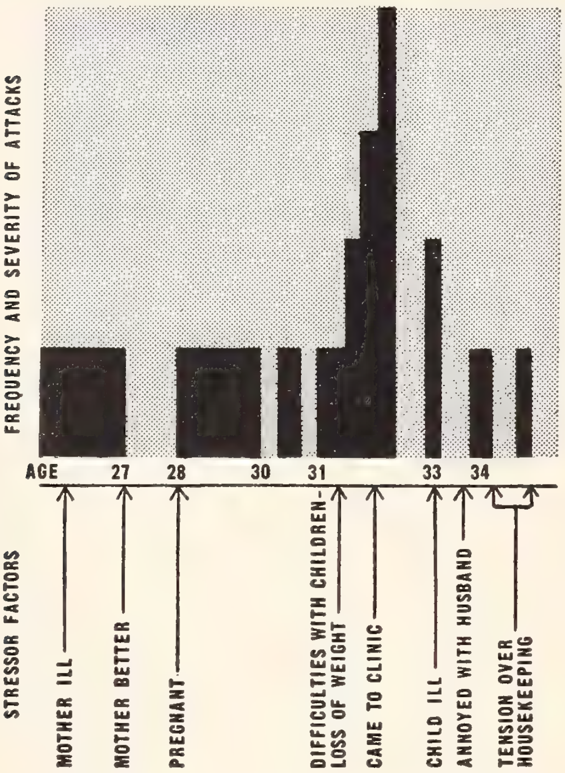
Stressor factors which evoke autonomic responses occur often in our civilization. They are not always of external origin, frequently, stress springs from the "well of uncertainties, the fears, the angers, and the hostilities that an inadequate childhood nurtures in troubled people in a troubled world."[1]



After: Relationship Between Life Stress And Symptoms — Stevenson, I.: G.P. *4*: 67 (Dec.) 1951

When emotions aroused by these stresses are not dissipated in appropriate biological behavior, heightened autonomic impulses beat against a "moored" physique.[1]

Incessant "emotional buffeting" impinged on labile autonomic pathways is likely to produce deviations from normal body function and *a rash of symptoms.* In such cases, both branches of the autonomic nervous system are involved. For symptomatic relief oral administration of cholinergic and adrenergic blocking agents and central sedation has proven successful. Drugs effective for the several actions respectively are: belladonna alkaloids, ergotamine tartrate and phenobarbital. These drugs may be used individually or in combination,* as required by the individual case, to effect more stable function of the autonomic nervous system, thereby "dampening" overactivity of the involved organ systems.

* Dosage of each ingredient adjusted to the needs of the particular patient.

[1] *Cleghorn, R. A. and Graham, B. F.: Recent Progress in Hormone Research, Vol. IV, New York, Academic Press, Inc., 1949, p. 323.*

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EVERETT C. GAINES

(Continued from Page 882)

Hammes of Saint Paul, and Dr. Gaines was presented with a gold watch by the Renville County Medical Society of which he was a former president. He also received a medal from the Minnesota State Medical Association for fifty years of service.

Dr. Gaines is survived by his wife, Adele Foster, a son William, of Buffalo Lake, and a daughter, Mrs. R. O. Boehlke.

NORMAN C. OCHSENHIRT

Dr. Norman C. Ochsenhirt, formerly a fellow in surgery at the Mayo Foundation, died in Pittsburgh on July 24, 1952, of coronary occlusion.

Dr. Ochsenhirt was born in Pittsburgh, February 12, 1892. He received his M.D. degree from the University of Pittsburgh in 1917. He served in the Medical Corps of the Army for a year during World War I and was in the U. S. Public Health Service for two years before entering the Mayo Foundation in 1924. He received the degree of M.S. in Surgery in 1927 from the University of Minnesota. After a brief stay in Cleveland, he moved to Pittsburgh.

He was assistant professor of oral surgery at the University of Pittsburgh School of Dentistry in addition to being on the surgical staff of several Pittsburgh hospitals. He was a fellow of the American College of Surgeons, the International Society of Dental Research, and the Pittsburgh Surgical Society.

CLIFFORD T. WADD

Dr. Clifford T. Wadd, for the past twelve years a practitioner at Janesville, Minnesota, died suddenly when his car left the road on July 21, 1952.

Dr. Wadd was born in Waseca, October 20, 1911. He obtained his M.D. degree from the University of Minnesota in 1937 and interned the following fifteen months at Minneapolis General Hospital.

In 1938 he became associated with Dr. O. J. Swenson of Waseca, Minnesota, and practiced there until he purchased the practice of Dr. C. R. Chadbourne in Janesville.

Dr. Wadd was active in community affairs and was respected by all who knew him. He was at one time president of the School board, was the Senior Warden of Janesville Lodge No. 124 A.F. and A.M., a member of the Waseca chapter of Regal Arch Masons, the Janesville Lodge I.O.O.F., the Mankato Lodge B.P.O.E. and the Janesville Methodist Church. He was also a member of the Waseca County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Wadd married Reba Staley, who with three daughters and a son survives him. He is also survived by his parents, Mr. and Mrs. Alfred Wadd of Waseca.

The fatal accident was the more tragic in that it took a valuable citizen of Janesville in his prime.

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◆ Reports and Announcements ◆

UROLOGY AWARD

The American Urological Association offers an annual award of $1,000.00 (first prize of $500.00, second prize $300.00 and third prize $200.00) for essays on the result of some clinical or laboratory research in Urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Hotel Jefferson, St. Louis, Missouri, May 11-14, 1953.

For full particulars, write the Executive Secretary, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before January 15, 1953.

FELLOWSHIPS FOR BASIC RESEARCH IN ARTHRITIS

The Arthritis and Rheumatism Foundation is offering to qualified individuals research fellowship in the basic sciences related to arthritis.

Followships w'll be granted on both the predoctoral and postdoctoral levels, and will run for one year with prospect of renewal.

The predoctoral fellowships will range from $1,500 to $3,000 per annum depending on the family responsibilities of the fellow, and the postdoctoral fellowships will range from $3,000 to $6,000 on the same basis.

The deadline for applications is November 1, 1952. Applications will be reviewed and awards made by February 15, 1953.

For information and application forms, address the Medical Director, the Arthritis and Rheumatism Foundation, 23 West 45th Street, New York 36, N. Y.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The seventeenth annual convention and scientific sessions of the National Gastroenterological Association will be held at the Hotel Statler in New York City, October 20, 21, 22, 1952.

Included in the program will be a Symposium on Liver Diseases, a Symposium for the General Practitioner and a Symposium on Bleeding Esophageal Varices and the Problems of Portal Hypertension. Another interesting panel discussion will be on Gastrointestinal X-Ray Methods, Diagnosis and Treatments.

Immediately following the convention, the Association will conduct its Fourth Annual Course in Postgraduate Gastroenterology at the Hotel Statler in New York City. The course will again be under the personal direction of Dr. O. H. Wangensteen of Minneapolis and Dr. I. Snapper of New York.

Further information may be obtained by writing the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

OMAHA MID-WEST CLINICAL SOCIETY

The Omaha Mid-West Clinical Society will hold its twentieth annual Clinical Assembly at Hotel Paxton, Omaha, Nebraska, October 27-31, 1952. An outstanding program is assured and will include a panel discussion on chronic diseases by guest speakers on Friday, October 31.

This assembly has been approved by the American Academy of General Practice, and members will be credited with the actual number of hours of attendance at the sessions.

Further information may be obtained by writing to the executive office of the Society at 1031 Medical Arts Building, Omaha, Nebraska.

COURSES IN ASPHYXIAL TREATMENT

The New York Eye and Ear Infirmary, in cooperation with the Society for the Prevention of Asphyxial Death, Inc., announces the resumption of its New York City courses in Laryngoscopy and Intubation (Flagging) for the prevention and treatment of acute asphyxial accidents. These courses are given at the New York Academy of Sciences, 2 East 63rd Street, the first Friday and Saturday of each month. The September class will meet Friday afternoon and Saturday morning, September 5 and 6, 1952. Matriculation fee, fifty dollars.

A course will also be presented in San Francisco, September 19 and 20, 1952. The purpose of the course is to emphasize asphyxia as a major medical problem and to acquaint the General Practitioner, Pediatrician, Obstetrician and other groups with the death zone of the respiratory tract. This information is presently saving lives, in the hospital, in the office and in outside practice.

While this course is given regularly, in the fall, winter, and spring in New York City, out-of-town courses have met in Columbus, Ohio; Boston, Massachusetts; Washington, D. C.; Los Angeles, California; Honolulu, T. H.; Chicago, Illinois; Atlantic City, New Jersey; and in Baltimore, Maryland. Out-of-town courses require a period of two months for logistical development. Those interested in attending one of the monthly courses in New York City or in having a course presented in their home city, should communicate with Secretary, S.P.A.D., 2 East 63rd Street, New York City 21, New York.

MINNESOTA MEDICAL ALUMNI MEETING

The annual meeting of the Minnesota Medical Alumni Association will be held at the University Hospital on Saturday, November 1, 1952 at 11:30 A.M. The meeting will be held on the morning of the Homecoming football game between Minnesota and Iowa.

On the same occasion, Minnesota Medical Alumni as well as other physicians will be able to take part in other medical activities which will include a meeting

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of the American Academy of General Practice at the Radisson Hotel, Minneapolis, on Wednesday, October 29; a Continuation Course in Medical Economics at the Center for Continuation Study and Museum of Natural History Auditorium on Thursday, October 30 and Friday morning, October 31 (tuition charge $15.00); Hospital Staff meeting Friday noon, October 31; Homecoming clinics Friday afternoon and Saturday morning, October 31 and November 1. The Medical Economics will deal with tax problems, investments, bookkeeping methods, office planning, et cetera, as applied to physicians.

MINNESOTA ACADEMY OF GENERAL PRACTICE

The Minnesota Academy of General Practice will hold its annual Fall Refresher at the Hotel Radisson in Minneapolis on Wednesday, October 29, 1952, starting at 8:20 A.M. This is an intensive one-day course on a variety of subjects. A distinguished list of speakers will include Drs. Philip Thorek and Philip Lewin of Chicago, Dr. A. C. Corcoran of Cleveland, Dr. J. E. Estes of the Mayo Clinic, Drs. E. T. Bell and Cecil J. Watson of the University of Minnesota.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country club in Saint Paul on September 9.

The following scientific papers were presented: "An Unusual Anomaly of the Spinal Cord," by Dr. Joseph A. Resch and "Pathology Found in Autopsies Performed on State Hospital Cases," by Dr. Jorge A. Lazarte.

The social hour began at 5:30 p.m. and dinner was served at 6:45 p.m.

CONTINUATION COURSES

The University of Minnesota will present a continuation course in *Fractures and the Surgery of Trauma* on November 13, 14 and 15, 1952. This program is intended primarily for physicians engaged in general practice and will include a discussion of the evaluation of injuries from the medico-legal standpoint. Two outstanding guest faculty members will participate: Dr. Carroll B. Larson, Chief of Service, Department of Orthopedic Surgery, State University of Iowa, Iowa City; and Dr. Edward L. Compere, Professor of Bone and Joint Surgery, Northwestern University Medical School, Chicago. The remainder of the faculty will include members of the clinical and full-time staff of the University of Minnesota Medical School.

* * *

A continuation course in *Medical Economics for Physicians* will be presented by the University of Minnesota next October 30 and 31. The course will be held in the Auditorium of the Museum of Natural History, which is adjacent to the Center for Continuation Study. During the one and a half-day session many topics of great interest to all physicians will be discussed by recognized authorities. A partial list of subjects to be

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presented includes the business aspects of medical practice, the doctor and the law, investments, and office planning.

At noon on Friday, October 31, following the conclusion of the course, a Homecoming Program for Physicians will get under way with the presentation of a special program at the staff meeting of the University Hospitals. On this occasion one of Minnesota's best-known and widely respected practitioners will discuss the role of the Medical School in relation to medical practice in the state. On Friday afternoon and Saturday morning, Homecoming Clinics will be held at the University Hospitals. These clinics, so popular prior to World War II, will be expanded and will include the presentation of interesting and instructive surgical, medical, pediatric, dermatological, and gynecological cases. All physicians are cordially invited to attend this Homecoming Program.

* * *

The University of Minnesota will present a continuation course in *Endocrinology* at the Center for Continuation Study on December 4 to 6. This course is intended primarily for physicians engaged in general practice and will include discussions of recent advances in the clinical use of ACTH and cortisone, the treatment of diabetes mellitus, and other common endocrine disorders. Dr. Dwight J. Ingle, Pharmacology Research, The Upjohn Company Kalamazoo, Michigan, will be the guest faculty member for the course. Dr. Ingle will also present the annual Journal-Lancet Lecture on December 4.

The course will be presented under the direction of Dr. C. J. Watson, Professor and Director, Department of Medicine, and the remainder of the faculty will include members of the full-time and clinical staff of the University of Minnesota Medical School and the Mayo Foundation.

In the United States about 3,000,000 persons are ill at any one time and more than 22 per cent of the yearly deaths are due to germ invasions. Nobody knows just how many persons have colds, influenza and sore throats each year, but estimates of common colds alone run as high as 85 per cent of the population.—*Christmas Seal Health News.*

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Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
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Adult	2.50	5.00	7.50	10.00
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◆ Of General Interest ◆

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* * *

Dr. Franklin A. Neva, Cloquet, was awarded a one-year post doctoral fellowship in virology. The fellowship is sponsored by the National Foundation of Infantile Paralysis and Dr. Neva will conduct his study at Children's Hospital, Boston, Massachusetts.

* * *

Dr. Byron E. Hall, a consulting physician at the Mayo Clinic and an associate professor of medicine in the Mayo Foundation, left Rochester July 1 to begin private practice in San Francisco.

* * *

Dr. Herman Joseph Just, formerly of Lafayette, was married August 2 to Mrs. Rose Mary Modlin, Saint Paul, at Hastings where he is now practicing. **Dr. Worth A. Hooper**, Blue Earth, recently joined Dr. Just in his practice at Hastings.

* * *

Dr. Harry C. Browne, recently staff physician with the Veterans hospital in Spokane, Washington, joined the Bratrud clinic, Thief River Falls, in August. Dr. Browne was graduated from the University of Oregon medical school. He was a resident in internal medicine at the Mayo Clinic Foundation from 1936 to 1939; a consultant and associate professor at the University of Minnesota, 1939 to 1947, and served two years with the Mayo Clinic hospital unit in the Pacific during World War II. Dr. Browne will specialize in allergies and diseases of the heart.

* * *

Dr. J. Gordon Beaton, member of the Fritsche clinic in New Ulm since 1951, left his practice there September 1. As yet Dr. Beaton has not decided where he will locate.

* * *

Dr. F. J. Hill, Minneapolis health commissioner, will attend the annual meeting of the American Public Health Association in Cleveland, October 20.

* * *

Dr. A. B. Nietfield, Warren, began practice in Sauk Centre in August. Dr. Nietfield has been a member of the Warren Hospital staff for six years. He was graduated from the University of Minnesota medical school in 1939 and served four years with the army in the American and Asiatic-Pacific theaters during World War II.

* * *

Dr. M. J. Lester, temporarily closed his practice in Truman on August 1, to serve with the United States Navy.

The "personality" sketch in *Time* magazine (week of July 19) featured **Dr. Benjamin Spock,** formerly of the Mayo Clinic and the Rochester Child Health Institute. Dr. Spock is now professor of child development at the University of Pittsburgh.

* * *

To commemorate his forty years of service to Park Rapids, **Dr. Walter W. Higgs** was honored July 31 at a dinner sponsored by the Ladies Auxiliary of the Veterans of Foreign Wars. **Dr. A. V. Garlock, Bemidji,** a classmate of Dr. Higgs at Northwestern University, gave the main speech.

* * *

Dr. Gregory Schissel, Ancker Hospital, Saint Paul, began practice in Crystal in July. Dr. Schissel is the first physician Crystal has had. His office is in the new Pharmacy building.

* * *

Dr. Herman J. Moersch, of the Mayo Clinic staff, left the United States in early August for several months' speaking tour. Dr. Moersch plans to present papers at medical meetings at Rio de Janeiro, Buenos Aires, Montevideo, Cordoba and Santiago. Dr. and Mrs. Moersch expect to visit Trinidad, Brazil, Argentina, Urugay, Chile, Peru, Panama and Mexico during their stay.

* * *

Dr. Russell Baker left his Hayfield practice in July to study x-ray diagnosis at the University of Wisconsin.

* * *

The Osseo Clinic will be moved into a new building as soon as the remodeling job, started in late July, on the Westinghouse store is finished. **Dr. John Pone** joined **Drs. Traugott J. Bloedel** and **Robert H. Ransom** on the Clinic staff, August 1.

* * *

Obstetrics and Gynecology, a new monthly journal being sponsored by the American Academy of Obstetrics and Gynecology, will make its appearance in January, 1953. The journal will be the official organ of the Academy and will provide an outlet for the publication of new developments and research in obstetrics, gynecology and allied fields.

* * *

Dr. Flower day was held in Gibbon on July 27, honoring ninety-one-year-old **Dr. W. Z. Flower** for his long years of medical service to the community.

* * *

The Silver Star medal and an Oak Leaf cluster were awarded to **Dr. Gilbert S. Campbell,** Minneapolis, for gallantry during his army duty in Korea in 1951.

* * *

Dr. William W. Winchester, staff, Mayo Clinic, left in July to begin private practice in San Jose, California.

Dr. H. J. Burns, Duluth, was appointed city civil service physician on August 4.

* * *

A physicians exchange service was begun in Owatonna in July. The co-operating physicians are **Drs. F. C. Anderson, John F. Arnesen, Donald H. Dewey, Daniel K. Halvorsen, Curt W. Lundquist, C. T. McEnaney, John A. McIntyre, Albert J. Olson, Oliver W. Roberts, Theodore W. Stransky** and **R. J. Wilkowske.**

* * *

Dr. Herb L. Huffington, San Jose, California, joined **Drs. George S. Bergh, Carter W. Howell** and **Solveig M. Bergh,** in their offices and practice in Montevideo, in August.

Dr. Paul T. Lowry, Minneapolis, received a one-year extension of his post-doctoral fellowship in internal medicine. The fellowship is sponsored by the National Foundation for Infantile Paralysis. Dr. Lowry is carrying on his study and investigation at the University of Minnesota.

* * *

Dr. Carl Weiss, Lawrence, Massachusetts, opened an office in the Radabaugh building in Hastings in August.

* * *

Dr. Philip W. Brown, of the Mayo Clinic staff, left August 10 to attend medical meetings in Sao Paulo, Brazil, Montevideo, Uruguay, Santiago, Chile,

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and Panama City. Dr. and Mrs. Brown also expect to do some sightseeing in Panama and Mexico.

* * *

New officers for the Minnesota Heart Association are: **Dr. Grace Roth,** Rochester, president; **Dr. Thomas J. Kinsella,** Minneapolis, vice president; **Dr. Charles N. Hensel,** Saint Paul, secretary.

* * *

Dr. John Schutz opened offices in Eden Valley and joined the staff of the Meeker County Memorial Hospital in August.

* * *

Dr. Charles G. Campbell, recently returned from Korea, and now with the Mayo Clinic, spoke August 6 to the training assembly of the 9709th volunteer air reserve training squadron.

* * *

Dr. V. H. Gardner, Fairmont, recently joined **Dr. D. H. Dewey** in his offices and practice in Owatonna.

* * *

Dr. C. H. Coombs, Cass Lake, started construction last month on a new, modern medical building on Central Avenue and Second Street.

* * *

Dr. Leo L. Zachman, Saint Paul, was appointed by Mayor Daubney to the county welfare board on August 14. His appointment will run to the end of the present term, July 1, 1953.

* * *

Dr. Hamline Mattson, Minneapolis, will address the Brotherhood of the First Lutheran Church at Hibbing on October 7. Dr. Mattson will show movies on several foreign countries he has visited.

* * *

Dr. George R. Pettersen. Saint Paul, began practice in the new clinic in Mabel in late August.

* * *

Dr. O. L. Getz, graduate of the University of Oslo, Norway, will enter the Mayo Clinic as a fellow in dermatology in October. Dr. Getz has been in practice as a member of the Gundersen clinic in La Crosse, Wisconsin.

* * *

Dr. J. B. Clement, Lester Prairie, retired on August 1 after fifty-three years of continuous service in the community. Dr. Clement came to Lester Prairie in 1899, from Montreal, Canada.

* * *

Dr. W. M. Manger was elected president of the Association of Fellows of the Mayo Foundation at the July 9 meeting. He succeeds **Dr. John Watson** who recently entered military service. **Dr. Haddon M. Carryer,** secretary-treasurer of the Olmsted-Houston-Fillmore-Dodge County Medical society, was a guest speaker at the meeting.

* * *

Dr. Robert Flom, Cook County Hospital, Chicago, began practice with **Dr. E. R. Hudec** at Wood Lake in August.

* * *

Dr. Earl Hill, Minneapolis, moved his offices to 1841 Medical Arts Building on July 1. Dr. Hill was

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graduated from the University of Minnesota in 1942 and did postgraduate work at the Veterans and University of Minnesota Hospitals. He was recently certified by the American Board of Internal Medicine.

* * *

Minnesota doctors who participated in the Second International Congress on Diseases of the Chest and the International Union against Tuberculosis held in Rio de Janeiro August 24-30, were **Dr. J. A. Myers,** professor of medicine and public health at the University of Minnesota; **Dr. John F. Briggs,** Saint Paul, chairman of the committee on cardiovascular diseases of the American College of Chest Physicians; **Dr. Grace Roth,** Rochester, president of the Minnesota Heart Association.

* * *

Dr. H. P. O'Neil joined **Drs. R. C.** and **Robert S. Hunt** in August in their practice at Fairmont. Dr. O'Neil was graduated from the University of Minnesota and has been in practice at Rochester, New York.

* * *

Dr. Conrad E. Eastwold, Minneota, was commissioned as a medical missionary of the Evangelical Lutheran church on August 17. Dr. Eastwold was graduated from the University of Minnesota medical school and served with the Air Force in the Far East. Dr. and Mrs. Eastwold sailed for Paris, France, on September 1 where Dr. Eastwold will study for a year before going to the Sudan Area of South Africa, where he is to serve as a medical missionary.

* * *

Dr. Charles P. Henke, Chicago, joined **Drs. H. N. Sutherland** and **J. P. Grahek** on the staff of the Shipman Hospital and Clinic at Ely in August. Dr. Henke has recently been associated with the Veterans Hospital in Grand Junction, Colorado.

* * *

Dr. H. Paul Wendt, Thief River Falls, recently merged his practice with the Falls Clinic. Dr. Wendt, as a member of the clinic, is now associated with **Drs. W. M. Feigal, Neil Nickerson** and **George Van Rooy.**

* * *

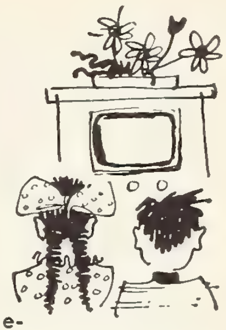
HOSPITAL NEWS

The new $1,707 000 unit at **St. John's Hospital** Saint Paul, which will add approximately eighty new beds to the hospital capacity will be completed about October 15, 1952. On that date it is contemplated all operations of the hospital will be concentrated in the new addition, and remodeling of the old building will begin.

On the first floor of the new addition there will be the new operating room and new administrative office space. The new obstetric division and nursery will be on the second floor. The third and fourth floors will be given over to general patients' rooms exclusively, while the top floor will house the chronic disease section.

Members of the building committee in addition to

"kid stuff"



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Surgical Anatomy and Clinical Surgery, two weeks, starting September 22, November 3.
Surgery of Colon and Rectum, one week, starting September 15, October 20.
Gallbladder Surgery, ten hours, starting October 20.
Bronchoscopy, one week, by appointment.
General Surgery, one week, starting October 6.
General Surgery, two weeks, starting October 6.
Breast and Thyroid Surgery, one week, starting October 6.
Esophageal Surgery, one week, starting October 13.
Thoracic Surgery, one week, starting October 20.
Fractures and Traumatic Surgery, two weeks, starting October 6.
GYNECOLOGY—Intensive Course, two weeks, starting October 20.
Vaginal Approach to Pelvic Surgery, one week, starting September 22, November 3.
OBSTETRICS—Intensive Course, two weeks, starting September 29, November 3.
MEDICINE—Electrocardiography and Heart Disease, two weeks, starting September 22.
Intensive General Course, two weeks, starting October 13.
Gastroenterology, two weeks, starting October 27.
Gastroscopy and Gastroenterology, two weeks, starting September 15, November 3.
CYSTOSCOPY—Ten-day Practical Course starting every two weeks.
DERMATOLOGY—Intensive Course, two weeks, starting October 13.

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* * *

Open house was held August 16 to initiate the newly erected clinic building at Hancock. It is a one-story structure with full basement in which there are veterinary offices. Part of the ground floor is occupied by dental offices. **Dr. O. A. Eide** has his offices in the rest of the building. There is a reception room, office, laboratory, x-ray room and two treatment rooms. One treatment room is papered and decorated especially to appeal to children.

* * *

A $30,000 check for heart disease research was presented to the University of Minnesota, August 22, by the Minnesota Heart Association. The check was given to **Dr. Harold S. Diehl,** dean of medical sciences. The remainder of a $50,000 grant for the year 1952-53 will be turned over later.

* * *

BLUE CROSS-BLUE SHIELD NEWS

In the statistical data covering the first six months of 1952, just compiled by Minnesota Blue Shield, are to be found a number of facts of interest to physicians. Among the salient features revealed by this analysis are total Blue Shield benefits paid, the increased number of claims per year per 1000 contracts, the increased cost per year per contract, and the decreasing percentage of subscribers classified as unlimited under the present annual income levels. Though many other highly significant facts are apparent in this report, these especially are worthy of more detailed consideration.

Payments of Blue Shield claims during the first six months of 1952 total $1,857,080. On this basis total Blue Shield payments to doctors during the whole year of 1952 will amount to $3,745,000 or about four million dollars. This is particularly interesting when related to payments of two million dollars in claims in 1950, three million in 1951 and a total payment of ten million dollars in claims by the end of this year or during the first five years of Minnesota Blue Shield's existence.

That subscribers are using their contracts and filing more claims is evident from the fact that the number of claims per year per 1000 contracts increased from 384 in 1950 and 499 in 1951 to 515 during the first six months of 1952. This represents a 34 per cent increase in contract utilization during a three-year period.

Immediately upon realizing that more claims are filed under each contract per year, the question arises what influence has this upon the cost per year per contract. In this respect it is found that the cost per year per contract increased from $15.36 in 1950 and $17.85 in 1951 to $18.14 during the first six months of 1952. Percentagewise this increase is less than the increase in the number of claims per year per 1000 contracts just discussed yet it is actually an 18 per cent increase or about an increase of one-fifth in just three years.

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annual incomes of $2000 or less or family subscribers with total gross family incomes of $3000 or less. For such subscribers participating physicians have agreed to accept the Blue Shield payments as payment in full for the services rendered. Analysis has been made of both the percentage of claims and percentage of cost, but since the different percentages so closely approximate one another, only the percentage of claims will be discussed. The report shows that in 1950, 30.6 per cent of the claims were for unlimited subscribers, whereas this ratio had decreased to 23.7 per cent in 1951 and only 14.4 per cent in 1952. In other words, there is a steadily decreasing percentage of subscribers whose Blue Shield claim payments must be accepted as payment in full for the services rendered.

This matter has been subjected to critical study in relation to incomes now found in various segments of Minnesota population. In other words the annual income levels of $2000 for single persons and $3000 for families covered nearly 70 per cent of the population of Minnesota in 1949, whereas now these same income levels include only 43 per cent of the state's population. This raises the question about the accuracy of the data secured from incompletely answered Medical Service Reports. This whole matter is stimulating a more detailed study.

During the first six months of 1952, hospital benefits in the amount of $6,960,468.00 were provided to Minnesota Blue Cross subscribers. This amount represented an increase of 10.3 per cent compared to $6,312,944.00 provided during the same period of 1951 and 24.2 per cent compared to $5,606,483.00 provided during the same period of 1950. On the basis of the past two years, it is estimated that hospital benefits provided during the year 1952 will be approximately $14,000,000.00 bringing the total benefits provided subscribers since 1933 to approximately $78,000,000.00.

Non-Group Enrollment

Commencing September 9, Blue Cross-Blue Shield non-group enrollment will be open to all residents of Minnesota in good health under sixty-five years of age who are anxious to receive this valuable Blue Cross-Blue Shield protection.

All doctor's offices will be provided with literature, posters, and application cards, and doctors are urged to help their patients in Blue Cross-Blue Shield enrollment—one of the finest types of hospital-medical-surgical coverage ever offered to the people of Minnesota.

The non-group campaign will run from September 9 to November 1, 1952, with all applications received prior to October 1 to become effective November 1 and applications received prior to November 1 to become effective December 1, 1952.

An entirely new type of Blue Cross non-group coverage will be offered—the new $25 deductible semi-private room contract, offering more liberal benefits.

Complete details concerning this new type plan have already been mailed and no doubt are already in the hands of every Minnesota doctor and hospital.

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This new departure in health care contracts is frankly experimental, and designed not only to render utmost service to non-group subscribers but also to combat the threat of socialized medicine. It should be emphasized that its success will be largely dependent on the amount of support given this new deductible type contract by the doctors and hospitals of Minnesota.

In addition, the Blue Shield non-group contract will include a substantially increased schedule of surgical benefits, with thirty days of in-hospital care provided for each separate illness. These and other increased Blue Shield benefits will become available to subscribers at no increase in rates.

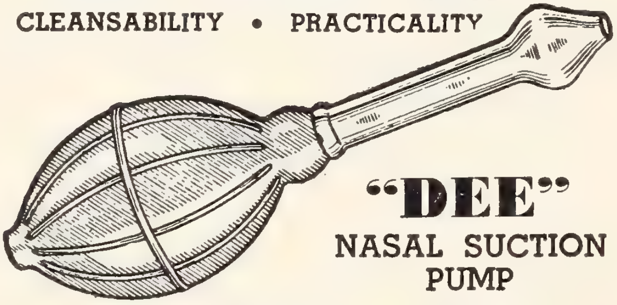
BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

PHYSICAL DIAGNOSIS. Harry Walker, M.D., F.A.C.P. Professor of Clinical Medicine, Medical College of Virginia, Richmond, Va. 461 pages. Illus. Price $8.00, cloth. St. Louis: C. V. Mosby Co., 1952.

THE OCULOROTARY MUSCLES. Second Edition. Richard G. Scobee, B.A., M.D., F.A.C.S. Assistant Professor of Ophthalmology, Washington University School of Medicine, St. Louis, Missouri. 512 pages. Illus. Price $11.00, cloth. St. Louis: C. V. Mosby Co., 1952.

STUDIES IN VISUAL OPTICS. Joseph I. Pascal, B.S., M.A., O.D., M.D. Licentiate in Optometry and in Medicine by the University of the State of New York; Director of Eye Department, Stuyvesant Polyclinic; Attending Ophthalmologist, New York Polyclinic Medical School and Hospital, Outpatient Department; Lecturer in Ophthalmology, New York Polyclinic Medical School and Hospital. 800 pages. Illus. Price $12.50 cloth. St. Louis: C. V. Mosby Co., 1952.



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SEX AFTER FORTY. S. A. Lewin, M.D., and John Gilmore, Ph.D. Introduction by The Reverend Dr. Russell L. Dicks, Professor of Pastoral Care, Duke University. 200 pages. Illus. Price $3.50 cloth. New York: Medical Research Press, 1952.

METABOLIC METHODS; CLINICAL PROCEDURES IN THE STUDY OF METABOLIC FUNCTIONS. By C. Frank Consolazio, Chief of Biochemistry, United States Army, Medical Nutrition Laboratory, Chicago, Illinois; Robert E. Johnson, M.D., D. Phil. (Oxford), Professor and Head of the Department of Physiology, University of Illinois, Urbana, Illinois; and Evelyn Marek, M.A., Biochemist, United States Army, Medical Nutrition Laboratory, Chicago, Illinois. 471 pages. Illus. Cost $6.75. St. Louis: C. V. Mosby Co., 1951.

Metabolic Methods by Consolazio, Johnson and Marek represents a rather complete compilation of the various procedures used in metabolic studies. The book is arranged as a modified outline and in this way presents the material concisely and uniformly so that one can readily obtain the information he seeks. This book is not intended for thorough reading but more as a handy, concise and quite complete reference volume. Bibliographies are appended to almost every section and subsection, and original references are given with the presentation of each procedure. Laboratory procedures are described in detail.

J. F. Alden, M.D.

SURGICAL GYNECOLOGY, INCLUDING IMPORTANT OBSTETRIC OPERATIONS. By J. P. Greenhill, M.D., Professor of Gynecology, Cook County Graduate School of Medicine; Attending Gynecologist, Cook County Hospital; Attending Obstetrician and Gynecologist, Michael Reese Hospital. Illustrated by Angela Bartenbach. (A Handbook of Operative Surgery). 350 pages. Illus. Price, $8.50. Chicago: Year Book Publishers, Inc., 1952.

Surgical Gynecology is a handbook of operative surgery. The book is divided into four sections. The first section is a short but concise discussion of preoperative Preparation and Postoperative Care and Complications, with a very extensive bibliography at the end of the section.

The remaining three sections are divided as follows; Vulvar and Perineal Operations, Vaginal Operations, Abdominal Operations. These sections are arranged so that it is possible to read the very short operative directions on the left side of the book and look at the pertinent plate on the right side.

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There is also a section on the legal questions concerning the use of pound animals and the legal aspects of "pound legislation."

About the size of a folded train schedule, the booklet will be valuable as a quick reference for speakers, debaters or teachers. It should be of special interest to secondary and college level teachers and to study groups. Doctors and other scientists and leaders of civic clubs will also find it of value.

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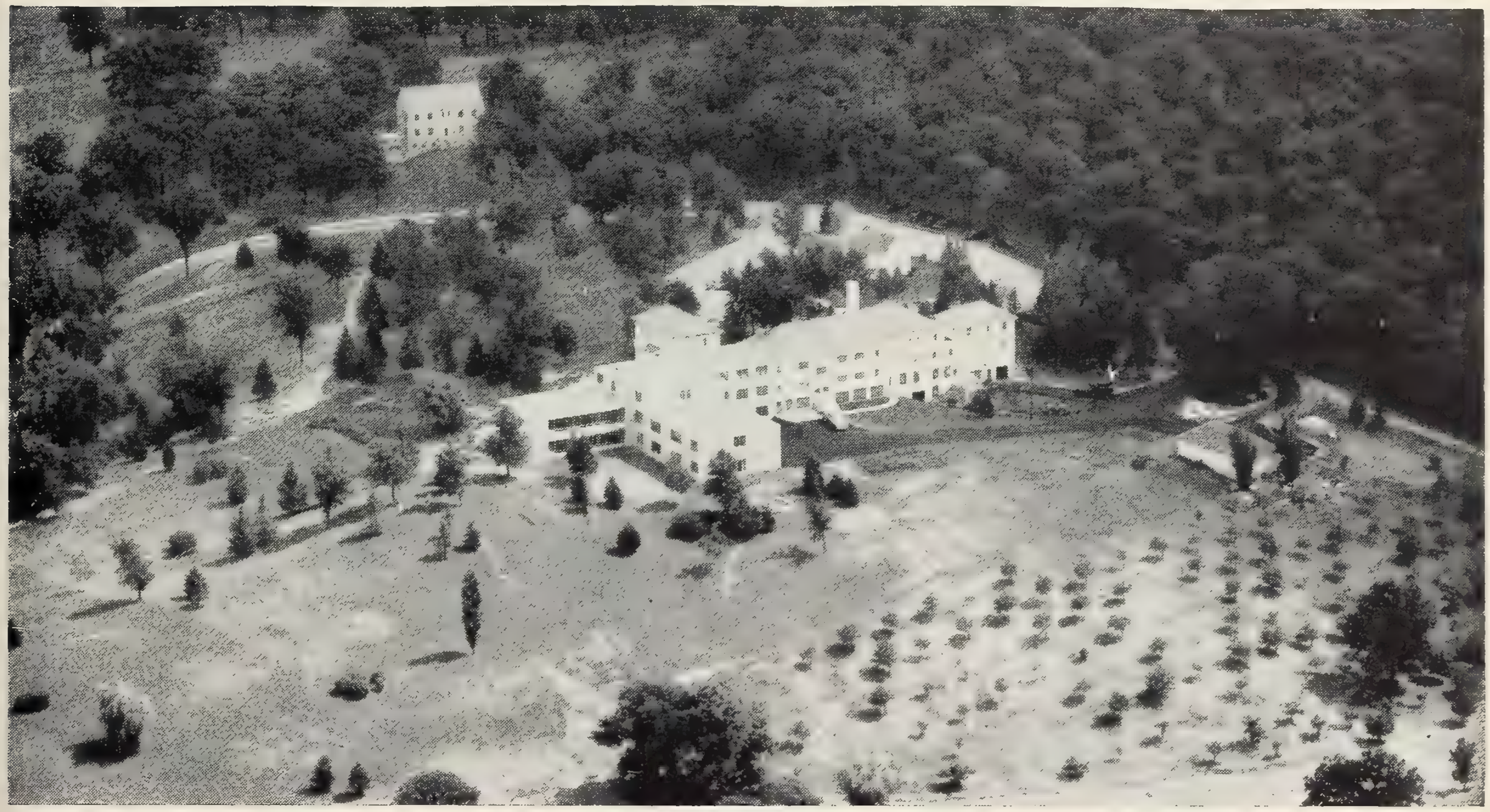

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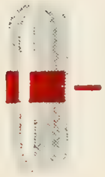

1. Michael, N.: Ohio State M. J. *48*:42, 1952.
2. Carter, S., in Conn, H. F.: Current Therapy 1952, Philadelphia, W. B. Saunders Company, p. 610.
3. Lennox, W. G., in Cecil, R. L., and Loeb, R. F.: A Textbook of Medicine, ed. 8, Philadelphia, W. B. Saunders Company, 1951, p. 1379.
4. Lennox, W. G., in Piersol, G. M., and Bortz, E. L.: The Cyclopedia of Medicine, Philadelphia, F. A. Davis Company, 1951, Vol. V, p. 215.
5. Christian, H. A.. The Principles and Practice of Medicine, ed. 16, New York, D. Appleton-Century Company, 1947, p. 1370.

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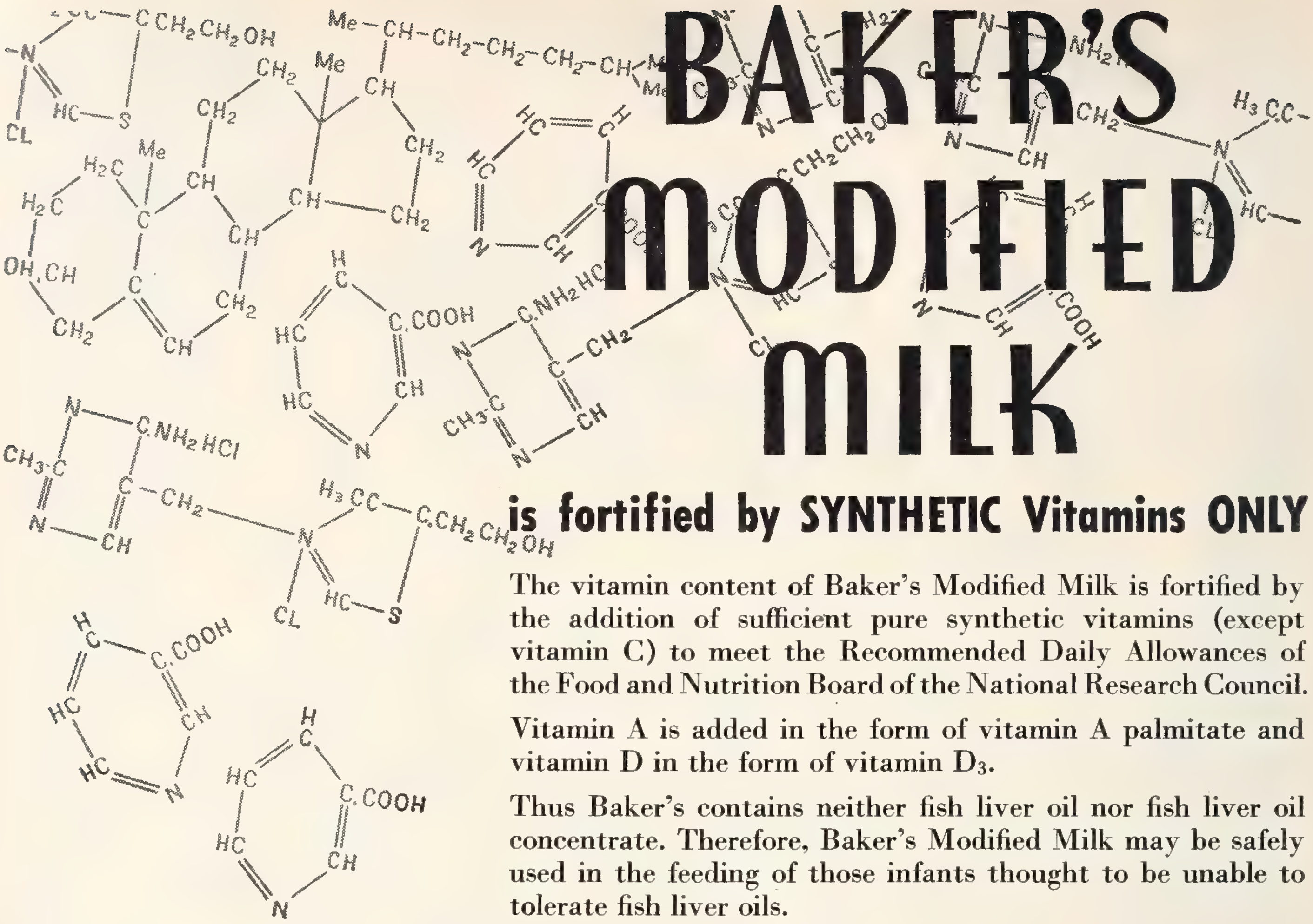

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Niacin	5.0 Milligrams
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	what is known	what is not known
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Bacterial resistance	Tubercle bacilli with increased resistance to Nydrazid have been isolated from patients. Resistant organisms can also be cultured in vitro, but this phenomenon is virtually eliminated when cultures are exposed to streptomycin and Nydrazid simultaneously.	The clinical implications of bacterial resistance are not completely known. Patients harboring resistant organisms may continue to improve under treatment. The question of delaying the emergence of resistant bacilli by combined therapy must await further study.
Toxicity	Toxic reactions to Nydrazid are chiefly due to stimulation of the central nervous system. They are negligible in the therapeutic dose range, except in patients with convulsive tendencies.	It appears probable that central nervous reactions to Nydrazid can be controlled by barbiturates. But with continued use of the drug, it is not known what sensitivity reactions may occur.

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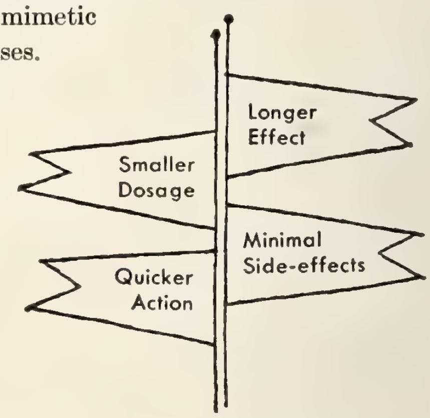

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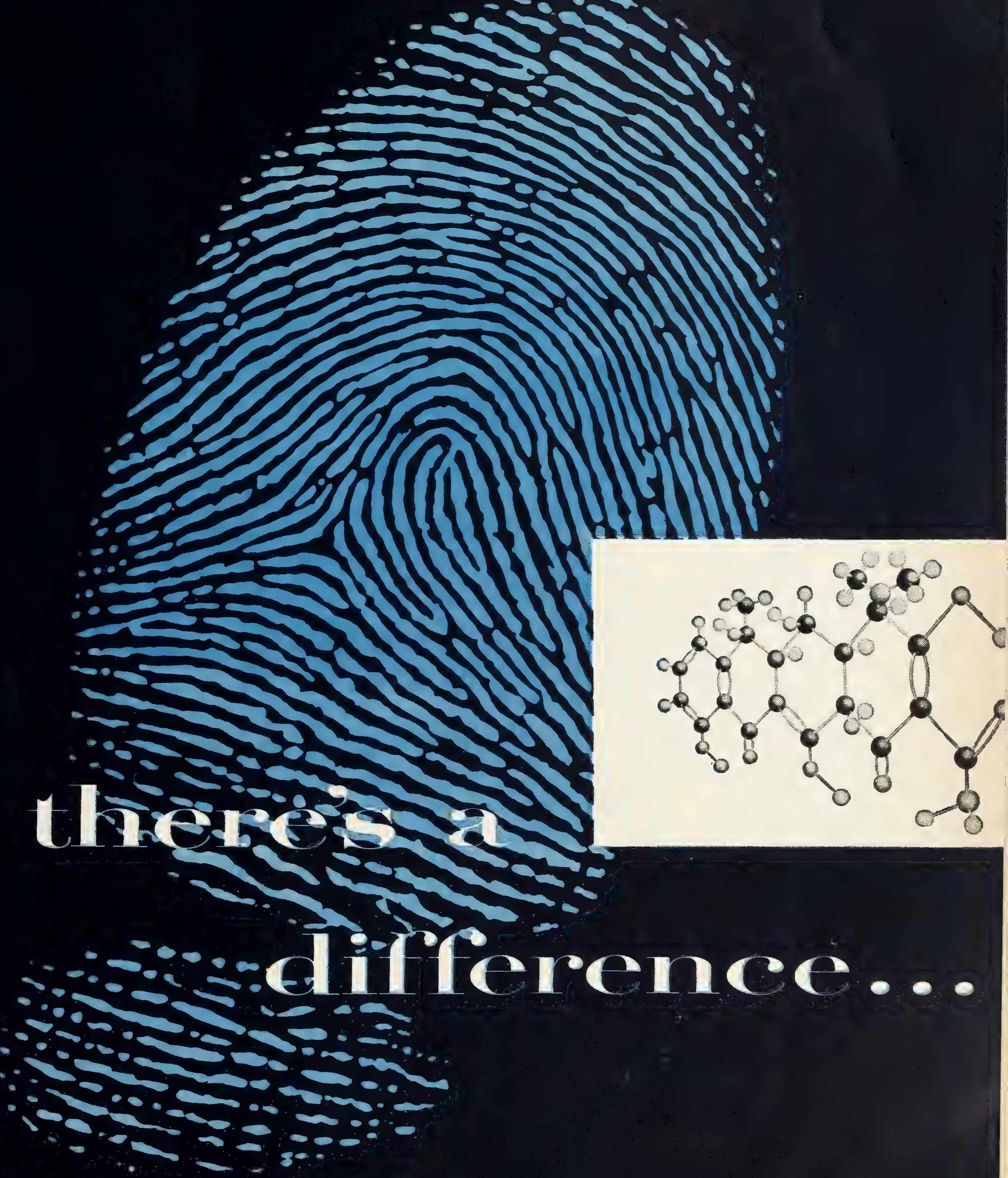
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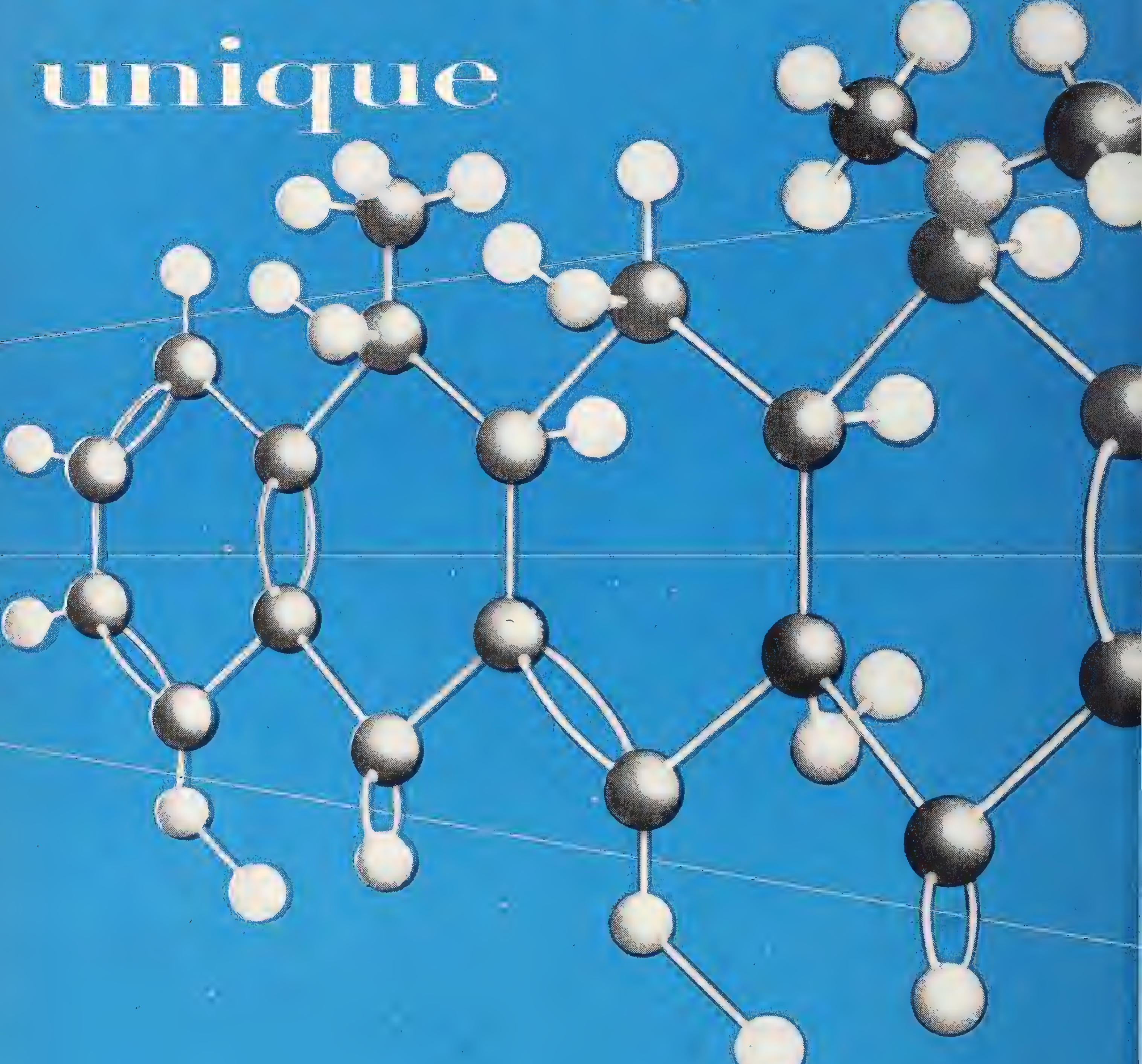

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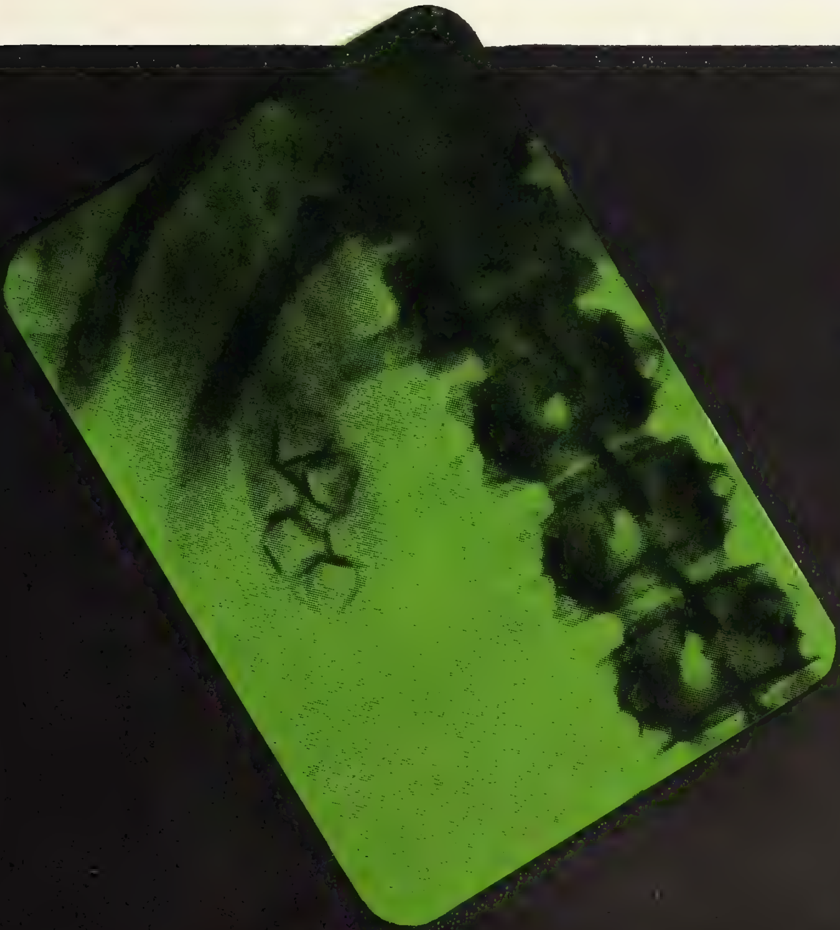

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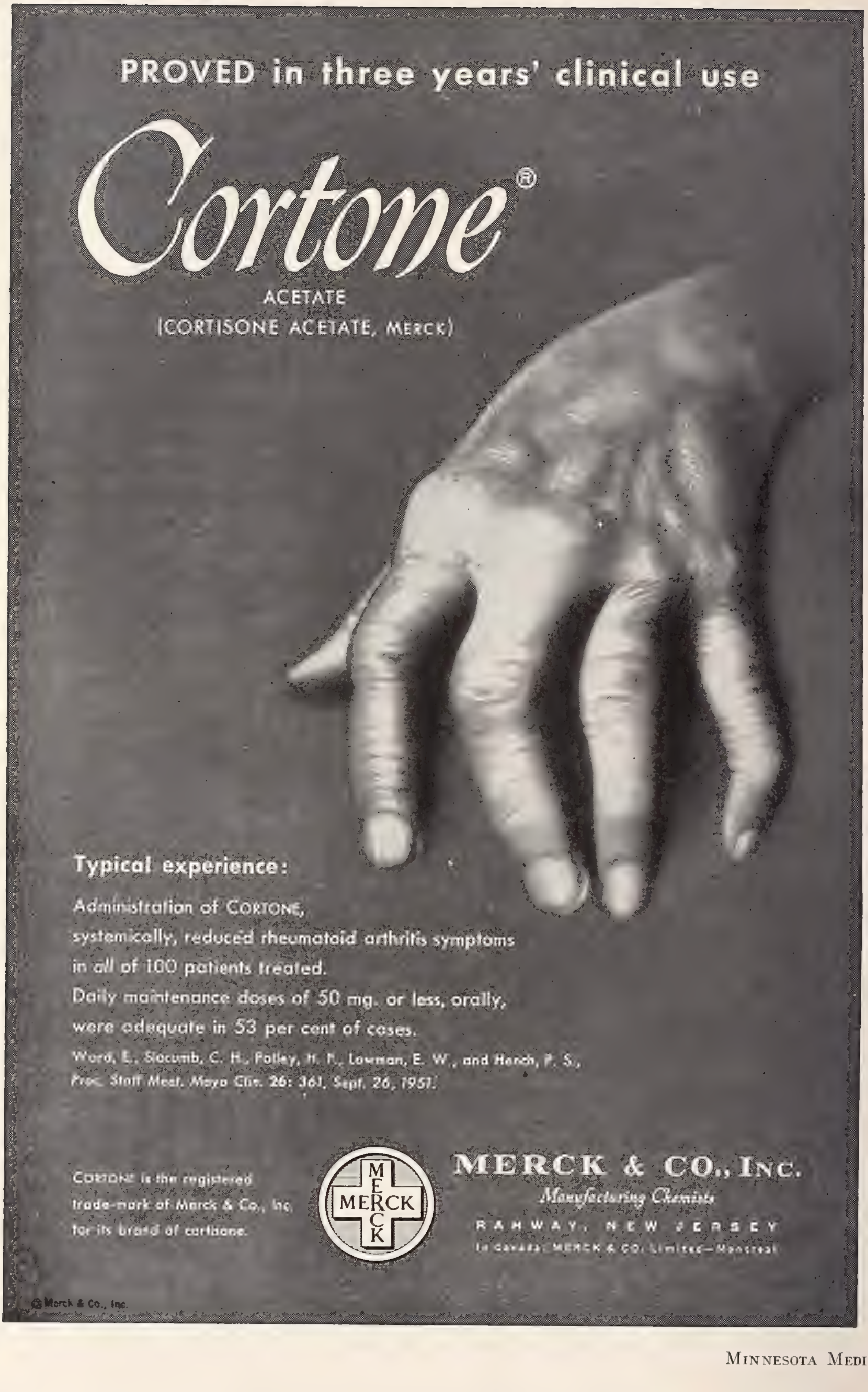

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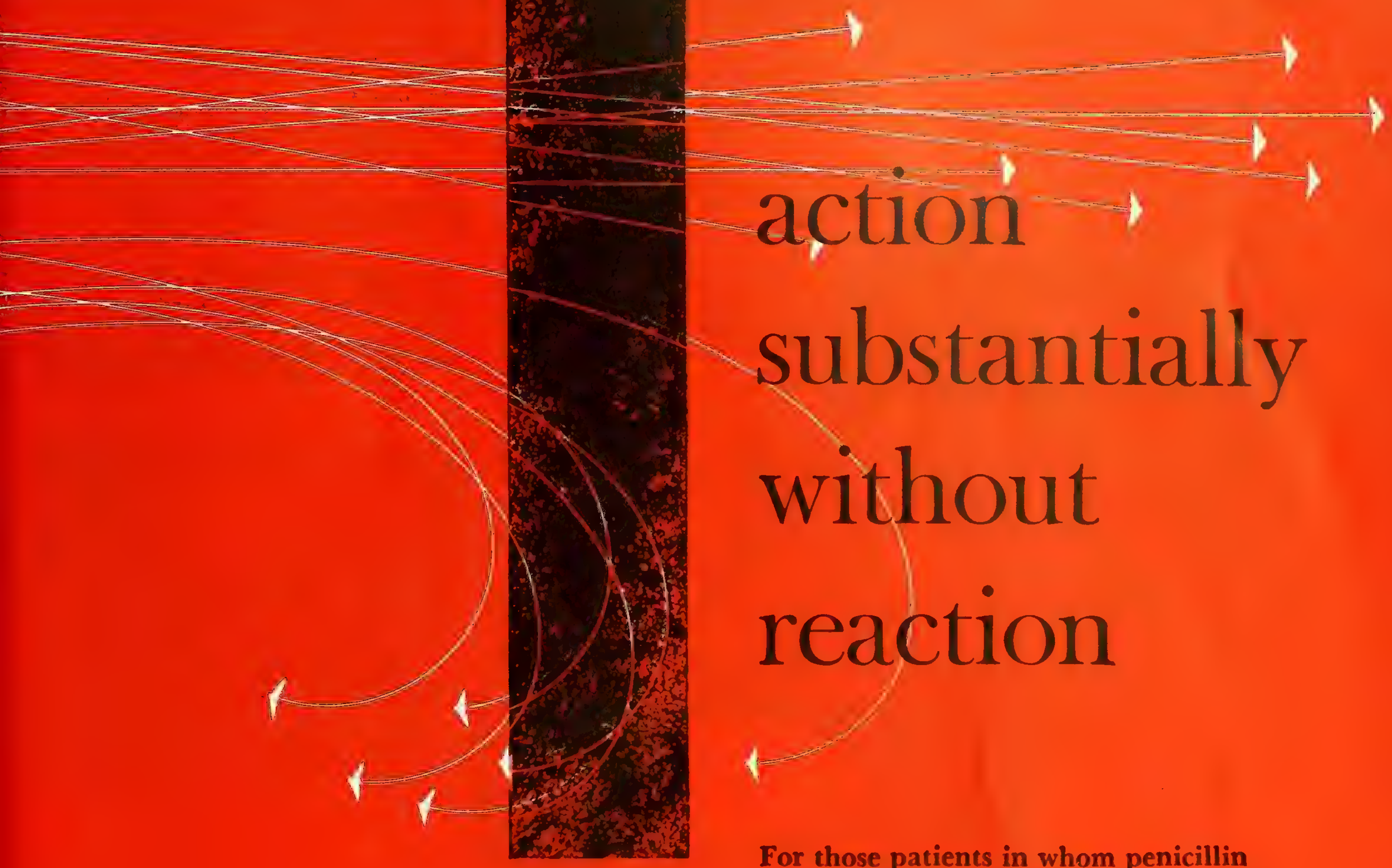

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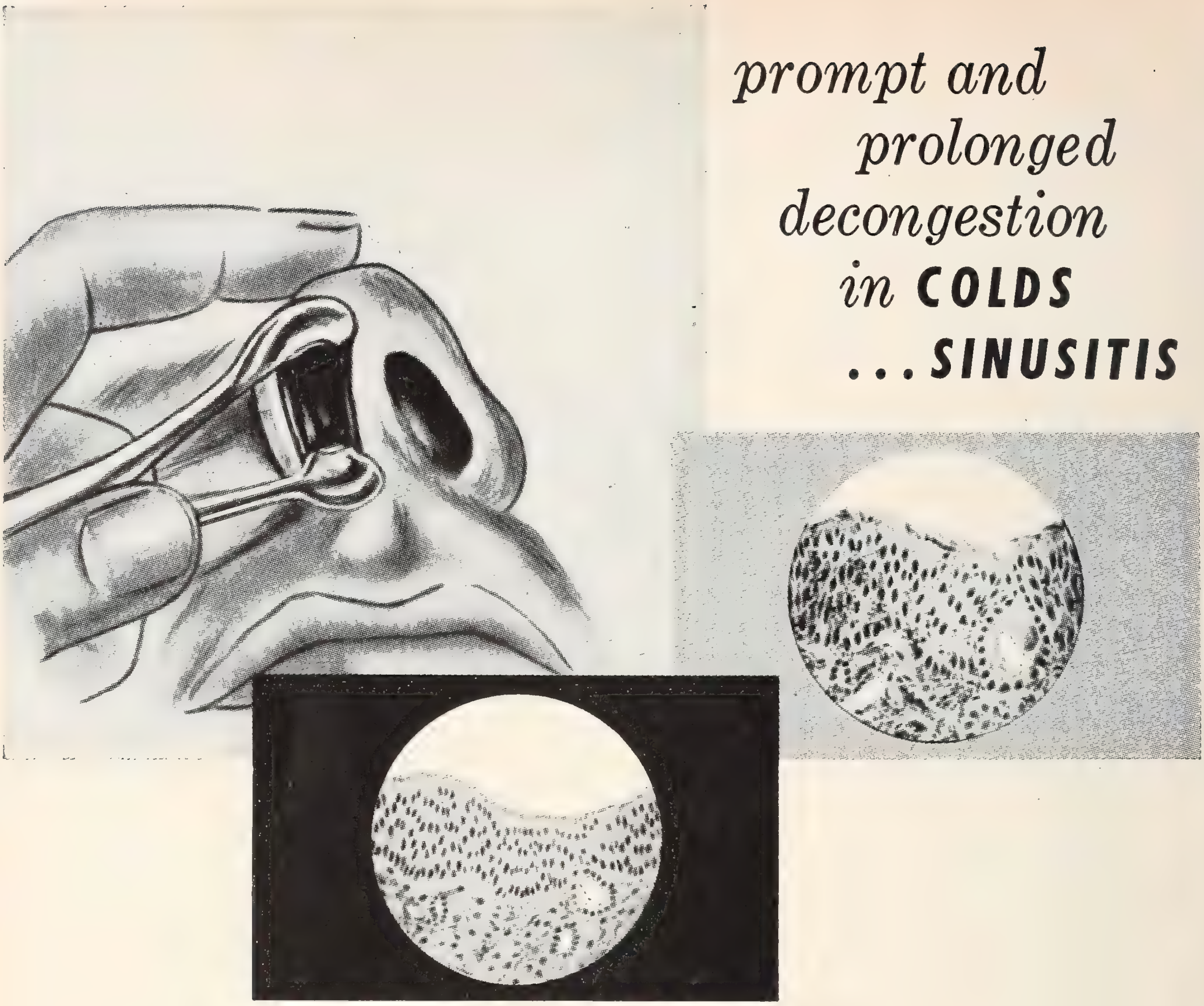

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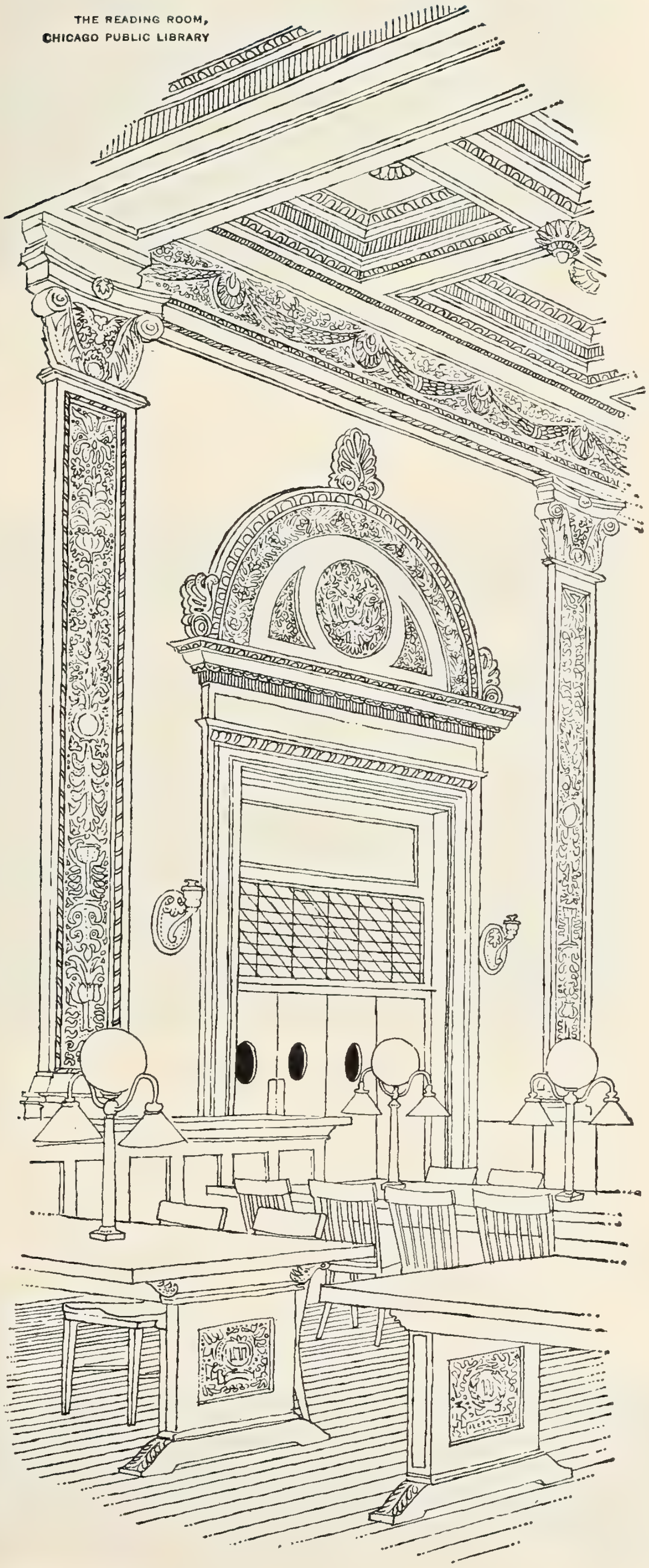

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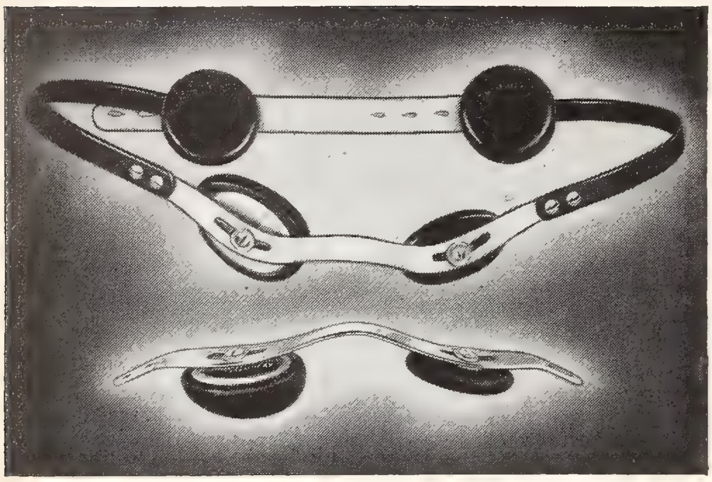

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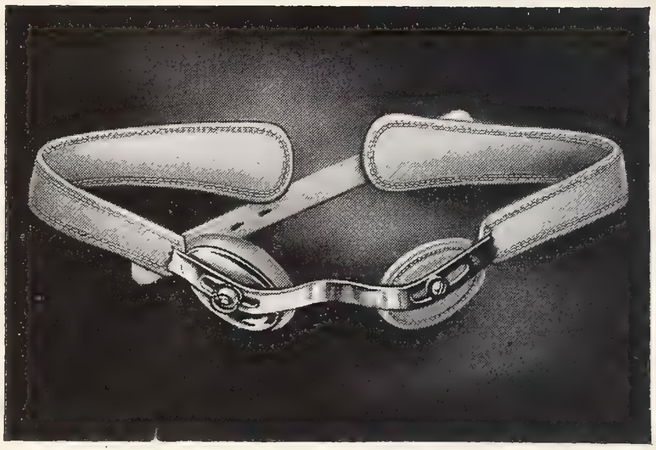

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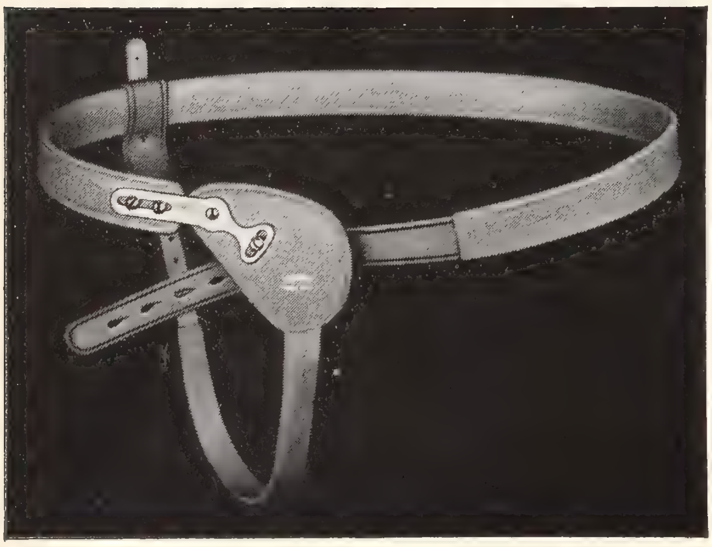

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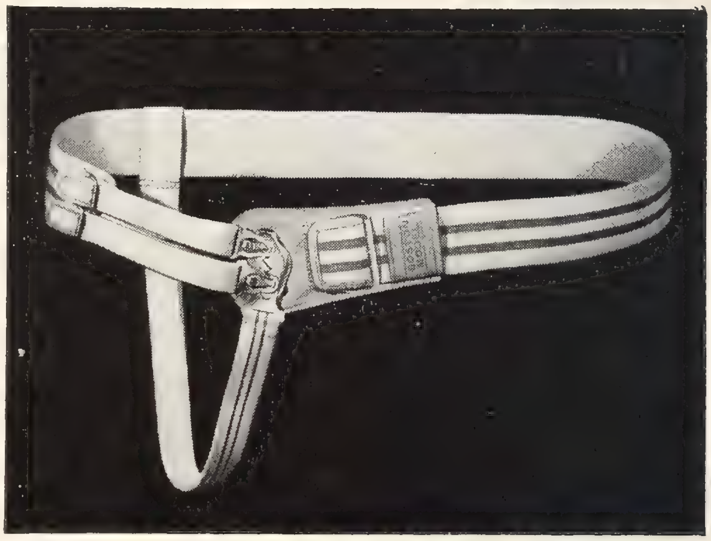

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WHEN DRUG THERAPY

Increases Nutrient Requirements

The administration of many drugs can sharply increase the patient's requirements for various essential nutrients. The presence and action of certain drugs in the organism may alter normal utilization of nutrients to purposes of detoxication of these drugs.

In some instances, drugs may impair absorption of nutrients, increase their destruction within the digestive tract, interfere with their metabolism, or hasten their elimination. With prolonged administration, therefore, unless the intake of various nutrients is increased, deficiency states may be precipitated.

The dietary supplement Ovaltine in milk can significantly increase the nutrient intake of the patient when therapy makes this adjustment necessary. As shown by the table below, it provides substantial amounts of all nutrients known to be essential. Its excellent quality protein furnishes an abundance of all the indispensable amino acids.

Because of its delicious flavor, Ovaltine in milk is universally enjoyed by patients. It is easily digested, bland, and its nutrients are quickly available for utilization. The two varieties of Ovaltine, plain and chocolate flavored, both similar in high nutrient content, allow choice according to flavor preference. Children particularly like Chocolate Flavored Ovaltine.

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(Each serving made of ½ oz. of Ovaltine and 8 fl. oz. of whole milk)

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*CALCIUM	1.12 Gm.	MAGNESIUM	120 mg.
CHLORINE	900 mg.	MANGANESE	0.4 mg.
COBALT	0.006 mg.	*PHOSPHORUS	940 mg.
*COPPER	0.7 mg.	POTASSIUM	1300 mg.
FLUORINE	3.0 mg.	SODIUM	560 mg.
*IODINE	0.7 mg.	ZINC	2.6 mg.
*IRON	12 mg.		

VITAMINS			
*ASCORBIC ACID	37 mg.	PYRIDOXINE	0.6 mg.
BIOTIN	0.03 mg.	*RIBOFLAVIN	2.0 mg.
CHOLINE	200 mg.	*THIAMINE	1.2 mg.
FOLIC ACID	0.05 mg.	*VITAMIN A	3200 I.U.
*NIACIN	6.7 mg.	VITAMIN B_{12}	0.005 mg.
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*PROTEIN (biologically complete)	32 Gm.
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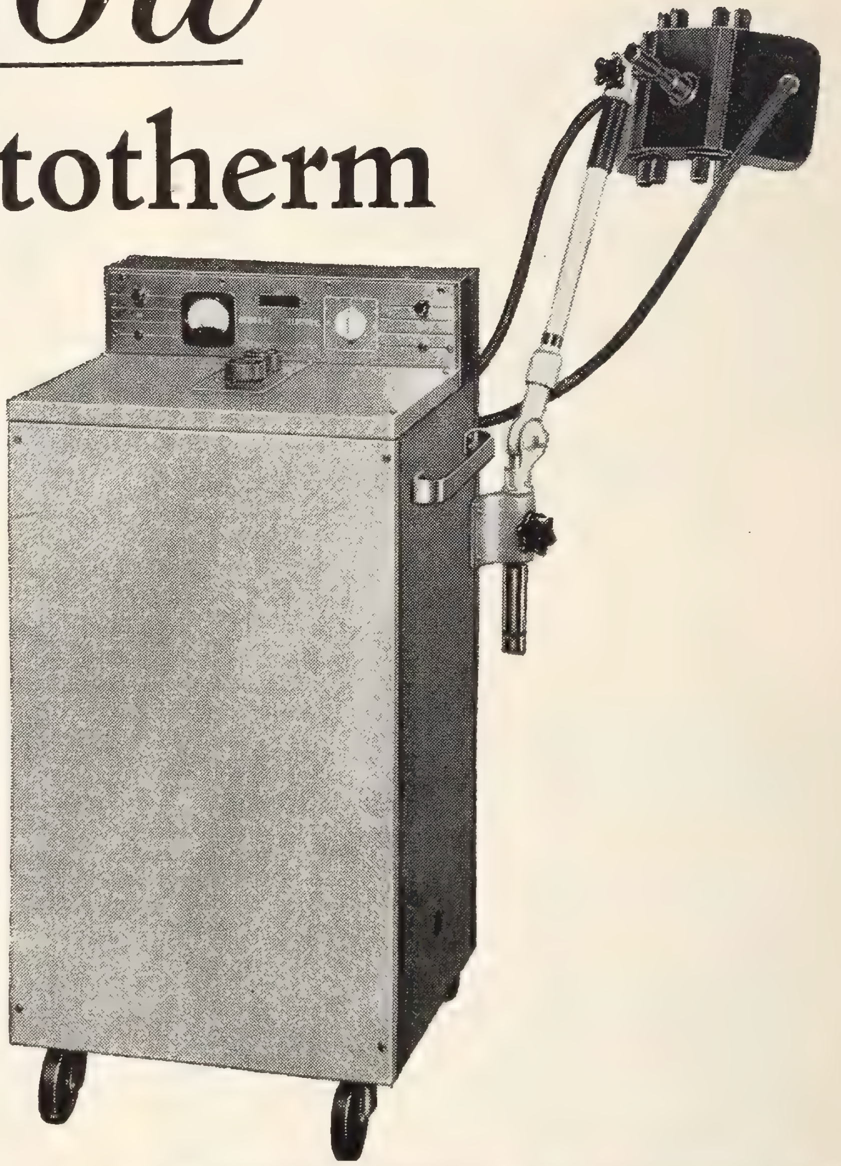
*Nutrients for which daily dietary allowances are recommended by the National Research Council.

You'll get a lot more out of the *all-new* GE Inductotherm



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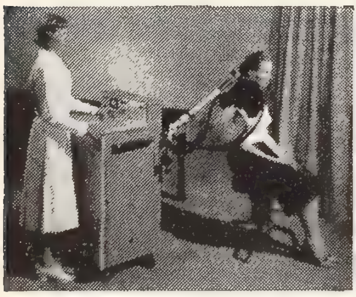
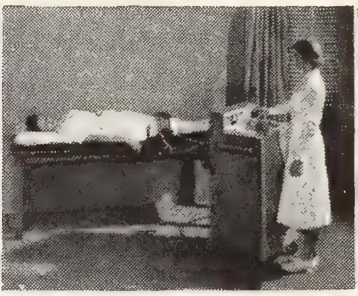
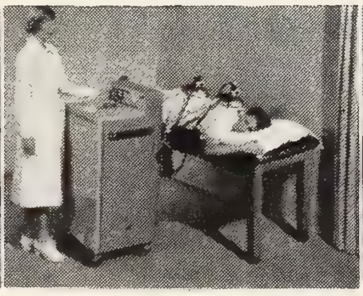
GENERAL ELECTRIC



Fully adjustable contour following electrode is part of the basic unit.



Optional is the 12 ft. treatment cable. Note how electrodes attach in rear.



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Since the antianemia effect of liver was discovered twenty-six years ago, true pernicious anemia has ceased to be a necessarily fatal disease; pharmaceutical refinements have made liver therapy increasingly acceptable; knowledge of the constituents of liver and the nature of anemias has increased. These developments have been helped substantially by teamwork between the Lilly Laboratories and other investigators.

It is now known that several chemically dissimilar substances in liver are effective in macrocytic anemias. For example, vitamin B_{12}, which is also derived as a by-product of Lilly streptomycin production, is usually effective in pernicious anemia. It is ineffective, however, in certain other macrocytic anemias in which folic acid, another natural constituent of liver, is indicated. From investigations such as are continuing in the Lilly Laboratories, it now appears that there are still other unisolated substances in liver which are potent agents capable of producing blood regeneration. Until all of these are identified and their relationships more clearly defined, the use of liver extract in macrocytic anemias will continue as sound therapy.

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Volume 35 October, 1952 Number 10

CANCER DETECTION

Report from the Center at the University of Minnesota

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SINCE the institution of the first Cancer Detection Center in this country in 1937,[4] there has existed considerable controversy among the medical profession regarding the attributes and shortcomings of such centers. Those reports that have appeared in the literature[1,3] have concerned clinics which dealt only with the so-called "accessible" cancers, and which made no attempt to detect gastrointestinal neoplasms. Even as regards only exterior cancers, such reports seem to agree that further refinements in screening techniques are needed to make cancer detection clinics generally practicable.

The Cancer Detection Center at the University of Minnesota was begun on March 1, 1948, with the approval of the Minnesota State Medical Association.[2] Its purposes were threefold:

1. To see if such a program which included search for gastrointestinal cancers, was feasible and practical for use on a broad scale.
2. To evaluate various screening methods, in the hopes of formulating a relatively brief, economical program which could be used throughout the country either in smaller centers or ideally by the individual physician in his office.
3. To benefit immediately those patients who were examined by this center, although obviously they could constitute only a minute fraction of the population in this area.

The following is a brief summary of the results of the four years, March 1, 1948, to March 1, 1952.

Presentation of Data

Material.—Only "symptom-free," apparently well individuals, forty-five years of age and over, are examined. They are instructed (1) to eat no meat products for three days before examination and to bring a stool and urine specimen with them, and (2) to clean the lower bowel by repeated tap water enemas until clear the night and morning before their examination.

Procedure.—A thorough history form is filled out by the patient. This form, based on true and false columns, covers habits, family history, and all symptoms which might conceivably suggest a malignancy.

All are given a routine examination which occupies the greater part of one day.

In the morning:

1. Complete blood count.
2. Urinalysis.
3. Blood Wassermann test.
4. Occult blood in the stool (both by guaiac and benzidine tests) after a meat-free diet for three days.
5. Gastric expression, using histamine (1 dose, 0.5 mg) as a gastric stimulant.
6. A proctoscopic examination by a proctologist.
7. Female patients have a complete pelvic examination by a gynecologist, with Papanicolaou smears.
8. Photofluorogram of chest.

In the afternoon:

1. Ear, nose and throat examination by an otolaryngologist.
2. General physical examination by one of our doctors with correlation of all findings including the history form.

From the Department of Surgery, University of Minnesota Medical School. Sponsored by the Council of the Minnesota State Medical Association and supported in part by the Minnesota Division of the American Cancer Society.

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The latter doctor then discusses the results with the patient and the patient is told to return to his family doctor for more detailed information. In particular, if any cancer or similar lesion is found, the patient is told to return to his doctor for immediate treatment. No therapy is given at the Center. Each patient is required to give the name of his personal physician, and to the latter is sent a complete résumé of our findings with our recommendations.

TABLE I. TYPES OF CANCER FOUND AT THE CANCER DETECTION CENTER
(March 1, 1948 to March 1, 1952)

Location	Number of Cases
Stomach	10
Colon	19
Duodenum	1
Breast	6
Cervix	4
Ovary	3
Prostate	5
Skin	22
Lymphosarcoma	4
Leukemia	3
Total	77

The above ends the routine examination. Further x-ray studies, aimed at the "inaccessiible" cancers, are taken only for specific indications and at a later date by appointment.

With occasional exceptions, these x-rays are of only two types. They are as follows, and are taken when any one of the listed criteria are present.

1. X-rays of the stomach with barium meal, when one or more of the following pertains:

   (a) Individuals with histamine achlorhydria and hypochlorhydria (less than 30 degrees of free acid).
   (b) Patients with occult blood in the stool.
   (c) Patients with a strong family history of gastric carcinoma.
   (d) Patients with an unexplained hemoglobin level below 11.0 grams.
   (e) Patients with vague symptoms of gastric pathology which in any sense could be interpreted as being due to gastric carcinoma by the examining physician.

2. X-rays of the colon after barium enema, with or without air contrast studies, when one of the following pertains:

   (a) Patients with abnormal findings on proctoscopic examination.
   (b) Patients with occult blood in the stool.
   (c) Patients with an unexplained hemoglobin level below 11.0 grams.
   (d) Patients with a family history of large bowel malignancy.
   (e) Patients who have vague symptoms that could possibly be conceived as being due to malignancy of the large bowel by the examining physician.

TABLE II. PRECANCEROUS LESIONS FOUND AT THE CANCER DETECTION CENTER
(March 1, 1948 to March 1, 1952)

	First Examination	Recheck Examination	Total
Polyps of colon and rectum	532	337	869
Gastric polyps	2	0	2
Kraurosis vulvae	15	7	22
Leukoplakia	115	51	166
Irritated nevi	230	49	279
Polyps of vocal cords	1	0	1
Senile keratosis	139	81	220
Thyroid adenomas	72	34	106

With rare exceptions the other more intricate examinations, such as intravenous pyelography, gastroscopy, et cetera, are not done here but are recommended to the patient's personal physician.

Follow-up.—The personal physician is asked to notify us when the patient returns to him and to let us know if his findings coincide with ours. All patients with the diagnosis of malignancy are followed and a report of the pathological findings is obtained. Thus all cancers listed in the results below are microscopically proven.

All masses, designated by us as "suspicious tumors" are also followed. When such lesions are excised, they are then relegated into the list of malignant or benign tumors as indicated.

All patients are asked to return for recheck examinations which are the same as the first. Such examinations recur at intervals of approximately one year. Remarkably few patients have failed to return for their recheck appointments, and at the present time five "recheck" patients are being examined for every one new patient.

Results.—8,230 examinations have been made on 4,352 patients (2,153 men; 2,199 women). Our findings have been as follows:

1. 77 cancers (including three cases of leukemia). (Table I)
2. 1,632 "precancerous" lesions. (Table II)
3. 2,536 benign tumors.
4. 125 suspicious tumors which required further diagnostic procedures.
5. 6,427 non-cancerous conditions which were worthy of medical attention.

Analysis

If one makes no discount for the original outlay for permanent equipment, including x-ray apparatus, the seventy-seven cancers were found at a cost of approximately $3,400 each. Obviously to each of these seventy-seven patients this was a worthwhile expense. However, as a measure to be applied to the population as a whole, there is some doubt as to the practicability of such an examination as a purely therapeutic venture. Aside from actual dollars there is also, of course, some doubt as to whether such examinations carried out on a nation-wide scale and finding a similar incidence of cancers, would yield results deserving of the time expended by the doctors, nurses and technicians required.

TABLE III. INCIDENCE OF CANCER FOUND AT THE FIRST EXAMINATION IN RELATION TO AGE AND SEX, CANCER DETECTION CENTER (March 1, 1948 to March 1, 1952)

Age	Cancers per 1000 Examinations	
	Men	Women
45-54 years	6.4	6.8
55-64 years	15.8	15.6
65 years +	26.9	12.2
Total	12.4	10.5

Based upon the supposition that early detection of cancer is worthwhile, and that a more economical (re both time and money) examination is desirable, a preliminary analysis of our data has been made:

(A) *Total Results.*—9.3 cancers were found per 1,000 examinations (11.9 cancers per 1,000 first examinations and 6.4 cancers per 1,000 recheck examinations).

(B) *Total Cancers.*—If one breaks down our results in regard to age, sex, first examinations, and recheck examinations, the incidences are as shown in Tables III and IV. It is apparent, and of course is to be expected, that a much more fruitful examination could be done if one dealt only with patients over the age of fifty-five years.

An exception to this rule is the woman with cancer of the cervix, all four of the latter having occurred in patients under fifty-five years of age.

(C) *Gastrointestinal X-rays.*—5,233 stomach x-rays have been made on 2,881 patients, and ten gastric cancers and two gastric polyps have been found. This is an incidence of 3.4 cancers per 1,000 patients or 1.9 cancers per 1,000 x-rays. Although these examinations were based on one or more of the indications listed above, the only characteristics common to all ten gastric cancers were a low free acid on gastric analysis, and an age of over fifty-five years.

If one had taken x-rays only for achlorhydria or hypochlorhydria and only in patients of fifty-five years or more, one would have found 5.1 cancers per 1,000 x-rays or 10.6 cancers per 1,000 patients; the incidence of cancer in the men being 1.7 times that in the women.

TABLE IV. THE INCIDENCE OF CANCER FOUND ON RECHECK EXAMINATIONS, IN RELATION TO AGE AND SEX, CANCER DETECTION CENTER (March 1, 1948 to March 1, 1952)

Age	Cancers per 1000 Examinations	
	Men	Women
45-54 years	2.1	5.2
55-64 years	7.1	7.0
65 years +	12.2	30.3
Total	5.3	7.9

(D) *Barium enema X-rays.*—3,443 colon x-rays were taken on 1,711 patients, and eight cancers and twenty-six polyps were found which were above the reach of the proctoscope. This is an incidence of 2.3 cancers per 1,000 examinations, or 4.6 cancers per 1,000 patients. The indications for x-rays in the case of both the cancers and the polyps were based either on abnormal proctoscopic findings or on the presence of occult blood in the stool. The age of these patients ranged over all three decades, however, and involved both sexes to approximately equal degrees.

If one had taken x-rays based only on proctoscopic findings, or on occult blood in the stool, one would have found 8.8 cancers per 1,000 x-rays or 11.0 cancers per 1,000 patients, and no polyps or cancers would have been missed.

(E) *Papanicolaou Smears.*—Approximately 6,000 smears have been studied. However, all four proven cervix cancers were picked up by biopsy, before the smears were read, and two of the latter were read as false negatives. There is one Class IV smear, not counted as a cancer, which is as yet unconfirmed by repeated and thorough biopsy and curettage. These results suggest that, when a thorough pelvic examination is done, with biopsy of suspicious areas, the Papanicolaou smear may be a rather redundant luxury in women over forty-five years of age; although, of course, it may well be a very valuable procedure when such a pelvic examination cannot be done due to shortages of time or personnel.

(F) *Proctoscopic Examination.*—The worth of this maneuver is shown, both by the fact that of the nineteen cancers of the rectum and colon, seventeen were picked up directly or indirectly by proctoscopy; and by the fact that benign rectal polyps have been found on proctoscopy in one out of eight first examinations, and in one out of ten recheck examinations.

TABLE V. INCIDENCE OF RECTO-SIGMOID POLYPS FOUND AT THE FIRST EXAMINATION CLASSIFIED BY AGE AND SEX
(March 1, 1948 to March 1, 1952)

Age	Men	Women
	Per Cent with Polyps	Per Cent with Polyps
45-54 years	17	8.0
55-64 years	15	9.5
65 years +	17	9.0

As may be seen in Tables V and VI, there was a slightly greater incidence of polyps in men than in women. However, in both sexes the yield from this relatively innocuous procedure was sufficiently high to make it worthwhile.

(G) *Other Tests.*—No cancers were led to by the routine urine examination, Wassermann examination, or chest x-ray, the latter probably reflecting the state-wide chest survey.

Although three leukemias were found, two of these were suggested by lymphadenopathy. Hence, it is probable, especially in view of the inefficacy of treatment at present, that the routine leukocyte count is superfluous in such a program.

Oddly enough, no cancers were found based upon a low hemoglobin alone, and this test may on further examination prove superfluous in asymptomatic patients, when x-rays are taken for the previously described indications.

Discussion

It has been inferred by some that early diagnosis by present-day methods will offer little improvement in our "cure-rate" of cancer. However, that early diagnosis of asymptomatic cancer is of some value is suggested by the fact that, of the seventy cancers found at this center (excluding seven leukemias and lymphosarcomas), 77.1 per cent were early, without demonstrable lymph node metastases: 50 per cent of the stomach cancers, 83 per cent of the colon and rectum cancers, 50 per cent of the breast cancers, 100 per cent of the ovarian and cervix cancers (i.e. Stage I). This proportion of lymph-node-free cases is, of course, considerably higher than that found in the usual hospital population. It is generally recognized that such localized cancers have a much higher survival rate; and even in the stomach malignancies, generally regarded pessimistically, our experience at the University Hospitals has revealed a five-year survival rate of 50.4 per cent in those cases without lymph node metastases at operation.

TABLE VI. INCIDENCE OF RECTO-SIGMOID POLYPS FOUND AT RECHECK EXAMINATION (PATIENTS NEGATIVE AT FIRST EXAMINATION), CLASSIFIED BY AGE AND SEX
(March 1, 1948 to March 1, 1952)

Age	Men	Women
	Per Cent with Polyps	Per Cent with Polyps
45-54 years	10.5	6.8
55-64 years	15.0	9.0
65 years +	10.2	10.9

Moreover, the ultimate salvage resulting from the removal of the 1,632 precancerous lesions cannot be fully evaluated.

Although there is little doubt that a system of examination as has been outlined above is too time consuming and expensive to be applied to the whole population, it should be possible to judiciously modify such an examination until it is brief, economical and feasible. It is the purpose of this clinic to define such a modified program. No attempt has, however, been made to subject the above data to detailed statistical analysis for the following reasons. In the first place the number of cancers found of any one type is as yet too small, and any critical analysis should of course treat each cancer type separately since each one involves different age groups, sex ratios, and symptomatology. Secondly, in spite of the efforts made, one can never be certain that those patients who come to the Center for the first time are truly asymptomatic. It is quite possible that some of such new patients come because they have symptoms, and they are therefore selected. To arrive at any conclusions concerning an ideal examination for the asymptomatic population at large we should deal in our analysis only with "recheck" patients, those who gave negative findings at their first examination, and who came back for re-examination, not because they wanted to, but because they were asked to return.

Nevertheless the above preliminary analysis is suggestively reliable since it coincides quite closely with what we know about these various cancers. For this reason a tentative program is suggested below:

1. Only patients over the age of fifty-five years to be examined.
2. Laboratory work to consist only of gastric analysis and examination of the stool for occult blood.
3. A routine physical examination for all patients.
4. Proctoscopy for all patients, after proper preparation.
5. A pelvic examination consisting only of bimanual palpation, but not including the use of the speculum or of the smear.*
6. X-rays of the stomach in those patients revealing less than 30° of free acid on gastric analysis.
7. X-rays of the colon in those patients showing abnormal proctoscopic findings or occult blood in the stool.
8. X-rays of the chest, only if a state-wide survey has not been made in that area.

It should be re-emphasized that the above is only a theoretical outline, and that final conclusions concerning the ideal program must await the accrual of more material. It should also be said that the effectiveness of any of these examinations, even the simpler ones, such as examination of the skin, breasts, rectum, and vagina, depend entirely for their effectiveness upon a very high index of suspicion. One must look not for the obvious cancer, but for the ulcer or lump which could be benign but *might* be a cancer.

It may also be stressed that the deletion of various details of physical examination and of laboratory examination in the above tentative detection program does not infer that such details are of no value, but that they merely appear less essential if one is striving for economy of effort and time.

Summary

A résumé of the first four years work of the Cancer Detection Center at the University of Minnesota has been presented, and a theoretical program has been suggested by which one could conduct a detection clinic more economically and almost as effectively. Any final conclusions regarding such an "ideal" examination must, however, await the accumulation of larger numbers of unselected, recheck patients who are reliably asymptomatic.

Bibliography

1. Cliffton, E. E. and Donovan, A. J.: Evaluation of a cancer detection clinic. J.A.M.A., 148:1169-1173, 1952.
2. Hubbard, T. B. (Jr.): The cancer detection center at the University of Minnesota. Minnesota Med., 32:1190-1192, 1949.
3. Jones, H. W. and Cameron, W. R.: An appraisal of cancer detection centers. J.A.M.A., 143:228-232, 1950.
4. L'Esperance, E. S.: Cancer prevention clinics. M. Woman's J., 51:17, 1944.

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*In this age group, such an examination is necessary for the detection of ovarian or fundic cancers. Pelvic examination of women younger than 55 years would be directed more toward cervical cancers and should constitute an entirely separate program.

BENTYL HYDROCHLORIDE AND GLAUCOMA

Chronic simple glaucoma is undiagnosed in one out of every forty people forty years of age or older. Unsuspected glaucoma may be precipitated by the use of atropine, belladonna, and many of the newer autonomic blocking drugs. These drugs have a tendency to increase intraocular pressure and thus bring on an attack of heretofore clinically unrecognized glaucoma.

Two patients suffering from glaucoma have been treated, because of irritable colon syndrome, with Bentyl hydrochloride. Although Bentyl has considerable atropine-like action on the gastrointestinal tract, it does not produce pupillary changes that might influence intraocular pressure. These known glaucoma cases (both were female, aged 60 and 70) received Bentyl 10 mg., four times daily by mouth for two to four weeks. "Intermittent Bentyl therapy has been continued for over one year in each case without producing dilatation of the pupil or an increase in the ocular pressure. Both patients have continued local use of 2 per cent pilocarpine in the eye, which has not interfered with the antispasmodic effect of Bentyl upon the gastrointestinal motility."—From Hufford, A. R.: Bentyl hydrochloride—Successful administration of a parasympatholytic antispasmodic in glaucoma patients. Am. J. Digest. Dis., 19:257-258, 1952.

SOME FUNCTIONAL DISORDERS OF THE SMALL INTESTINE OF CLINICAL IMPORTANCE

Carman Lecture

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TO THE Minnesota Medical Society I wish to express my deep appreciation of the invitation to give the Carman Lecture of 1952. At the time Russell Carman was making his important contributions very little attention was paid by either clinicians or radiologists to the small intestine. He would have been much interested in and would have contributed to the remarkable advances which have occurred in the radiologic study of this important part of the digestive tract, as have his successors in the division of Roentgenology of the Mayo Clinic.

Disease or disorders of the small intestine may be disclosed incidentally during a radiologic examination of the stomach and duodenum, or, in rare instances, during an examination of the colon. The best way to study the small intestine by x-ray is to follow a barium suspension through its entire length by films at regular intervals, and fluoroscopic observations.

The three major indications for a small intestine study are: (1) diarrhea; (2) intestinal bleeding; (3) abdominal pain, particularly located in the periumbilical region or the right lower quadrant, assuming that disease in the more common sites in the stomach and large intestine has been ruled out by appropriate examinations.

I shall review first some facts concerning the motor physiology of the small intestine which seem to have a bearing on the phenomena demonstrable by x-ray methods. I will then discuss some disorders of neurogenic origin, the effect of certain drugs, various conditions associated with gas distention of the intestine and some of the possible physiologic mechanisms involved in these disorders.

Physiology

In spite of much study over many years, much remains to be learned about the basic physiology of the small intestine. However, certain generally accepted facts are of importance in understanding some disorders of the intestine. A more extensive discussion of small intestine physiology applicable to the radiologic examination is available elsewhere.[6,7]

The propulsive movements of the small intestine are composed of contractions of both longitudinal and circular muscle, preceded and followed by relaxation. These movements become disorderly and ineffective in experimental animals when the wall of the intestine is cocainized, and are regarded as reflexes, co-ordinated and controlled through the intramural nervous system. It follows, therefore, that to be normal and effective these movements require proper function of the nervous apparatus in the wall. Bayliss and Starling[2] showed that the first evidence of fatigue of the muscle in the dog's intestine was failure of the wall to relax ahead of a contraction. It has also been shown that these contractions are associated with electrical discharges (Puestow,[16] Smith[19]).

The mucosa of the small intestine, like that of the stomach, by virtue of the muscularis mucosae moves independently of the tunica muscularis. The muscularis mucosae forms and changes the mucosal folds which give the characteristic feathery pattern of the small intestine .

The intestine is innervated by the parasympathetic and the sympathetic divisions of the autonomic nervous system. The fibers of both divisions, along with blood vessels, pass between the two layers of the mesentery of the intestine where they are vulnerable to certain diseases. The intramural nervous system is composed of the myenteric (Auerbach's) plexus and the submucosal (Meissner's) plexus. Both contain ganglion cells and pre- and post-ganglionic fibers of the parasympathetic, and also post-ganglionic fibers of the sympathetic. Both also contain fibers not related to either division but which connect

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one short segment of intestine with another; presumably the reflexes which control the propulsive movements operate through these intersegmental fibers.

Stimulation of the vagus (parasympathetic) in animals or giving parasympathomimetic drugs increases tonus and peristalsis in the small intestine. Stimulation of the splanchnics or giving sympathomimetic drugs relaxes the intestine and diminishes peristalsis. Some of the reactions observed in the human intestine, however, suggest that the nervous control is not as simple as this sounds.

Evidence has been presented that stimulation of the parasympathetic produces acetylcholine, and that the injection of acetylcholine causes effects similar to parasympathetic stimulation. It has also been shown that sympathetic stimulation produces a substance similar to adrenalin in its effects. These two substances became known as chemical mediators.

The production of acetylcholine by an enzyme called "choline acetylase" (Nachmansohn and Machado[15]) requires among other things the correct concentration of potassium ions and the presence of a thiamin compound. Insufficiency of either of these or of other ingredients would interfere with the production of acetylcholine and, therefore, with the flow of nerve currents and with their effects on muscle cells.

Acetylcholine is inactivated very rapidly by a specific enzyme, "acetylcholine esterase," which is present only in nerve tissue. This enzyme is inhibited or destroyed by a number of substances including prostigmine. The administration of one of these inhibitors has an effect similar to stimulation of the parasympathetic system because it intensifies and prolonges the effect of any acetylcholine which happens to be present. However, an inhibitor such as prostigmine will have little or no effect if acetylcholine is reduced in amount or absent. It is generally agreed that acetylcholine is necessary for the passage of the nerve impulse along the nerve fiber and across the synapse and that it must be rapidly destroyed to permit the passage of the next impulse.[3]

The mechanism by which adrenalin produced by the sympathetic nerves counteracts the effect of the parasympathetic is apparently not known, but it acts in some respects like an inhibitor of acetylcholine.

X-Ray Examination of the Small Intestine

Examination of the small intestine by x-ray methods gives information, (1) about the transit time from the ingestion of the opaque material to its entrance into the cecum; (2) about the width of the lumen as a manifestation of tonus; and (3) about other less important manifestations of the motor function. The transit time varies to a degree with the character of the barium suspension. With barium in normal saline the transit time varies in apparently normal individuals from one to four hours. The width of the barium shadow varies from 2.5 to 3.0 cm. in the jejunum to 2.0 to 2.5 cm. in the ileum. Excessively rapid transit time and a narrow lumen can be regarded as a manifestation of excessive parasympathetic influence.

"Normal" is defined in the dictionary as average, and "abnormal" would, therefore, be defined as a deviation from the average. But in medicine the deviation must be of sufficient degree to be of clinical significance. The borderline between normal and abnormal is not often sharp and distinct.

Disorders Consistent with Parasympathetic Overactivity

The influence of emotional states on the gastrointestinal tract is well known. The effect may be diarrhea or pain or both.

Psychosomatic diarrhea in a number of cases has been associated with a very rapid transit time. Using a barium-saline suspension the opaque material reached the cecum in approximately fifteen minutes in some of these patients. One young woman was having up to fifteen watery movements a day at the time of admission. This patient's diarrhea quickly stopped under psychotherapy, but the rapid transit time in the small intestine persisted. In these cases the colon is also hypermotile, which does not allow sufficient time for the water in the contents of the small intestine to be absorbed in the large intestine.

A woman, aged seventy, was admitted in 1931 because of attacks of abdominal pain which began thirty-five years previously after desertion by her husband, leaving her five young children to support. The small intestine study disclosed extreme hypertonicity of the lower jejunum and proximal ileum (Fig. 1). Her symptoms were temporarily relieved by atropine, a parasympathetic inhibitor. Extensive clinical study failed to disclose an organic reason for the attacks of pain which she was still having in 1949 at the age eighty-eight. The clinical picture and the abnormal intestinal physiology shown by x-ray examination in 1931 and again in 1949 can be best explained as excessive parasympathetic influence of psychogenic origin.

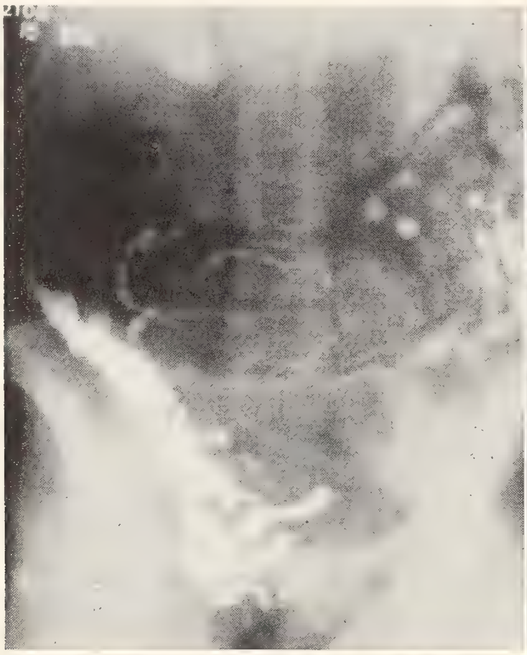

Fig. 1. (*left*) Hypertonicity of the small intestine associated with attacks of abdominal pain of psychosomatic origin.

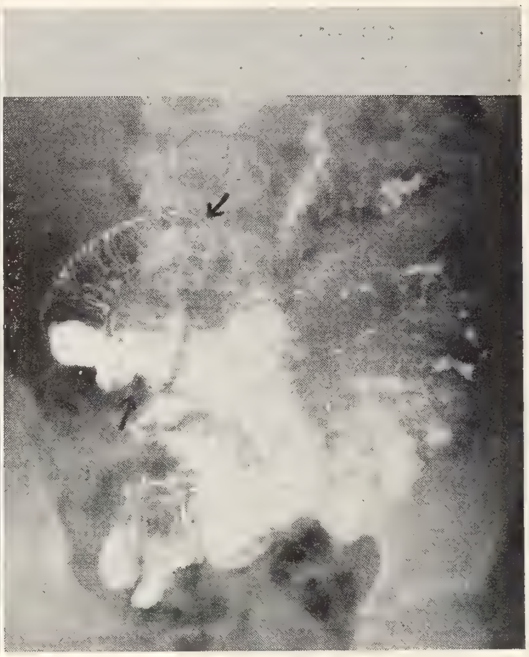

Fig. 2. (*right*) Functional Intussusception. An eleven-year-old boy (Unit No. 877251) came to the Babies Hospital because of attacks of abdominal pain which began following the death of his father five years previously. A small intestine study disclosed at least two temporary intussusceptions, one of which is reproduced above. Careful clinical study led to the conclusion that his symptoms were of psychosomatic origin and that his mother needed psychiatric treatment even more than he did. After a congenial stepfather joined the family, the attacks of pain recurred less and less frequently and finally ceased. A second roentgen study about six months after the first showed nothing abnormal. (*Courtesy of Dr. John Caffey.*)

Functional intussusception, that is, intussusception without organic disease of the wall, was produced in monkeys[22] by stimulation or extirpation of the cortex of the premotor area and was associated with overactivity of the intestine. The injection of parasympathetic stimulants in cats caused "contraction rings" in the small intestine, which either remained stationary or moved along and sometimes occluded the lumen.[20] Kuntz[11] states that a failure of the mechanism co-ordinating contraction and relaxation is apparently the initiating factor in the intussusceptions of infancy. Falor[5]and Keith[10] saw several intussusceptions at laparotomy in soldiers wounded in battle in Western Germany with no direct injury to the intestines themselves.

Teitlebaum and Arenson[21] showed that recurrent, self-reducing intussusceptions in the small intestine of children can be demonstrated by x-ray methods. We have seen this in adults and also in a number of young children with celiac disease, where it is probably the mechanism producing the abdominal pain of which celiac children not infrequently complain. Figure 2 shows an example of functional intussusception of psychosomatic origin in a child.

Kuntz[11] regards allergic reactions as functional disturbances which involve primarily tonic changes in the musculature of viscera. These reactions are to be attributed to deviations from the normal autonomic balance, produced by "heightened parasympathetic or cholinergic reactivity."

Allergic reactions in the gastrointestinal tract responsible for symptoms are uncommon and are usually difficult to detect. We have seen a transit time of one-half hour or less and hypertonicity, particularly of the lower half of the small intestine, in patients whose symptoms were relieved by the elimination of some food, for example milk or eggs, from the diet. However, allergic phenomena manifest many vagaries. A rapid transit time and hypertonicity of the intestine are merely evidences of parasympathetic overactivity which in any given instance might be the background for allergic responses, and therefore do not justify a diagnosis. The examination of the small intestine is done with opaque material from which possible allergens are excluded. In the presence of an allergen, transit time may be slowed and abnormal segmentation of the barium shadows may appear.

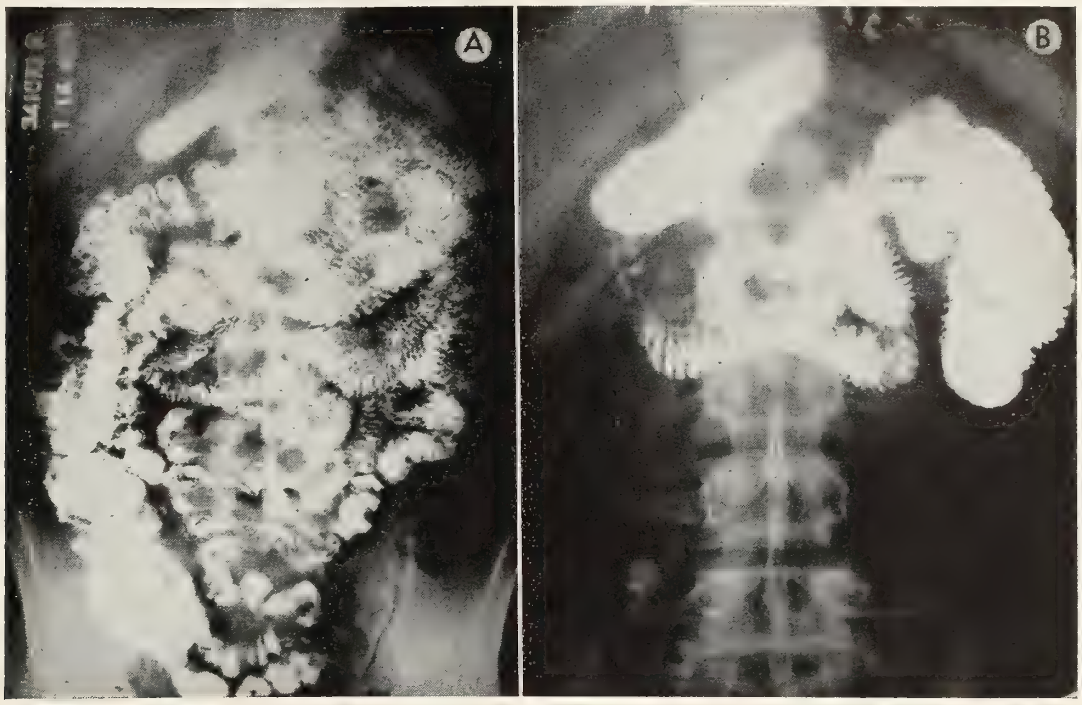

Fig. 3. Parasympathetic inhibition by banthine in a man twenty-three years old with a history of allergy. (*A.*) The half-hour film, January 14, 1948, shows the head of the barium column in the midtransverse colon. The stomach was empty in one hour. At a similar examination on February 2, 1950, the barium entered the cecum and the stomach was empty in one and one-half hours. (*B*) On February 14, 1950, the patient received 100 mg. of banthine by mouth. This film, five and one-half hours after the ingestion of barium, shows a large amount of opaque material remaining in the stomach and the head of the column in the proximal part of the jejunum. The barium did not begin to enter the cecum until about nine and one-half hours. This illustrates the retarding effect on gastrointestinal movements of the parasympathetic inhibitor.

Parasympathetic Inhibition

Physiologists have long known that atropine and certain other drugs prevent or reduce the effect of parasympathetic stimulation and of parasympathomimetic drugs. More recently another drug of this type called banthine has been put on the market and has been used largely to reduce gastric secretion, which is stimulated by the vagus. Its effect has been shown to be more prolonged than that of atropine.

Banthine also has a definite effect on the motor function of the small intestine. As shown in Figure 3, it produces hypotonicity and considerable slowing of the transit time. It has been useful in some patients with symptoms and signs consistent with excessive parasympathetic effect. In two of our cases it produced mild paralytic ileus. Both of these patients had ulcerative colitis with involvement of the rectum. It has long been known that rectal irritation produces stimulation of the sympathetic. In these cases, therefore, in addition to this abnormal sympathetic stimulation, the banthine produced an inhibition of the counteracting parasympathetic influence. In fact, one of these patients found that he could control his abdominal distention by reducing the dose of banthine.[12]

Parasympathomimetic Drugs

The effects of parasympathetic action may be intensified and prolonged by any drug which inhibits choline esterase and thus prevents the destruction of acetylcholine (e.g. prostigmine, eserine, etc.), or by the use of an acetylcholine derivative (e.g. mecholyl, urecholine, etc.). These drugs are useful in the investigation of the motor phenomena of the small intestine.

Occasionally patients are encountered who have abdominal pain or distention, with a slow transit time. The symptoms in a number of these have been relieved by parasympathomimetic drugs. We have found that urecholine can be administered by mouth in doses which have a definitely stimulating effect upon a sluggish stomach and intestine without producing unpleasant side effects and which are followed by relief of symptoms.

Ingelfinger and Moss[9] made studies of the motor activity of the intestine by means of a balloon in two cases of sprue. They found evidence of low tonus and sluggish contractions. Injection of prostigmine produced slight or no response but a prompt strong response followed the injection of mecholyl. They concluded that in these cases the intramural nervous apparatus of the intestine was unable to elaborate active acetylcholine.

May and McCreary[14] showed that the injection of mecholyl in children with celiac disease, in which disordered motor function of the intestine occurs, was followed by an increase in intestinal movements and in the absorption of glucose.

The observations of Ingelfinger and Moss were reproduced in a sprue patient at the Presbyterian Hospital, using barium instead of a balloon.[7]

In one instance, distention suggesting a paralytic ileus appeared about eight days after amputation of the breast for carcinoma in a woman aged seventy-five. No cause for the persistent distention could be found. Prostigmine produced no response, suggesting a lack of acetylcholine. Administration of urecholine, however, was followed by prompt disappearance of the distention and uneventful recovery.

These observations indicate that under certain conditions insufficient acetylcholine is produced in the intestinal wall for reasons which are not clear. Because acetylcholine is necessary for the transmission of nerve impulses, the result of this lack would be manifested along the axone as interference with reflexes as well as at the effector cell. Could the apparent need for more parasympathetic influence in these individuals be analogous to the physiologic disorder of myasthenia gravis in skeletal muscles?

Sympathetic Overactivity and Intestinal Distention

The sympathetic may predominate because of: (1) overactivity of the sympathetic itself; or (2) insufficiency of the parasympathetic.

Overactivity or predominance of the sympathetic division of the autonomic nervous system theoretically should have effects similar to those of a parasympathetic inhibitor. General peritonitis is frequently associated with paralytic ileus. Arai[1] showed in cats that experimental peritonitis resulted in slowing movements of the small intestine but this effect would not result if the splanchnics had been previously sectioned or if choline was injected. Arai concluded that the effect of peritonitis on the intestine was the result of overstimulation of the sympathetic. Considerable experimental evidence is available which indicates that epinephrine inhibits the action of acetylcholine, analogous to the effect of atropine.

Volk, at the Presbyterian Hospital, found no electrical activity in the intestine of a patient with paralytic ileus caused by an appendiceal abscess. As the patient improved, electrical activity was recorded before intestinal movements and before audible evidence of peristalsis could be detected.

Extreme distention of the intestine occurred in a strong 18-year-old boy who suddenly developed severe pain in the back and muscle spasm from what was later shown to be a herniated lumbar intervertebral disc. This distention disappeared quickly when the pain was relieved but reappeared on two later occasions when the pain recurred. In this case, the distention amounted to a paralytic ileus, was associated with distention of the bladder, and can be explained on the basis of sympathetic stimulation resulting from the pain and muscle spasm. Similar phenomena in a mild form have been associated with lumbar myositis, ureteral colic, et cetera. Unfortunately a satisfactory sympathetic inhibitor, like banthine for the parasympathetic, is not available, so that this physiologic hypothesis cannot be tested directly.

Intestinal Distention in Conditions with Insufficient Production of Acetylcholine

Banthine, a parasympathetic inhibitor, either depresses the production of, or reduces the effect of, acetylcholine. As mentioned above, this drug can cause gas distention of the intestine, presumably because the depression of the parasympathetic permits the sympathetic to become predominate. Distention may occur by this mechanism in any condition in which the production of acetylcholine is insufficient.

Administration of excessive amounts of intravenous fluid causes hypoproteinemia with edema and gas distention of the intestine. Under these conditions, this type of paralytic ileus may occur after operation or may complicate mechanical ileus. Edema of the lungs, with or without peripheral edema, may develop. Intestinal distention occurred in a burn case receiving large amounts of intravenous saline. No response to prostigmine is obtained in such cases, which suggests that acetylcholine is not being produced in sufficient quantity to cause an effect on the muscle or else that the muscle becomes incapable of responding to acetylcholine when the inhibitor of acetylcholine esterase is given. The distention disappears when the excessive fluid intake is discontinued and the blood protein returns to normal.

Edema fluid in the intestine collects in the submucosa. Because the submucosa extends into the mucosal folds (valvulae conniventes), the fluid widens these folds (Fig. 4). This widening of the folds in the presence of edema can often be detected in the shadows of gas-distended loops of jejunum. These mucosal folds appear as fine lines running across the gas shadows; as edema develops these cross striations become two to four times the normal width, may become indistinct and even disappear.

A low blood potassium produces the same effect even in the presence of normal blood protein. A loss of potassium occurs after operations and is aggravated by excessive administration of intravenous saline. According to Randall and coworkers,[17] symptoms of hypopotassemia usually appear from four to nine days after the operation, drowsiness, languor, "chronic ileus," scanty urine and edema. The first signs appear when the potassium level descends to 3.5 meq./L (normal 4 - 5 meq./L), and at 2.6 meq./L or less the symptoms become severe. This distention of the intestine is also not relieved by prostigmine, suggesting that the amount of acetylcholine available is insufficient to affect the muscle. The proper concentration of K ions is necessary for the production of acetylcholine and hence for the transmission of nerve impulses. Winter, Hoff and Dso[23] put rats into potassium deficiency and found reduced tonus and rhythmicity of the whole digestive tract, but particularly of the stomach and small intestine.

The amount of potassium in the blood serum may not give a correct picture of the electrolyte balance. The level in the blood may be normal in the presence of an intracellular deficit or may be low when potassium ions are rapidly leaving the blood to go into cells in which a deficit has occurred.

According to experimental evidence[13] potassium accelerates the production or the release of acetylcholine, which is counteracted by calcium and magnesium. Movement of potassium ions plays a part in the transmission of nerve impulses. Possibly these mechanisms are disturbed in the presence of a potassium deficit. The rapidity of recovery following the administration of potassium suggests that this disorder of either nerve or muscle function is easily reversed.

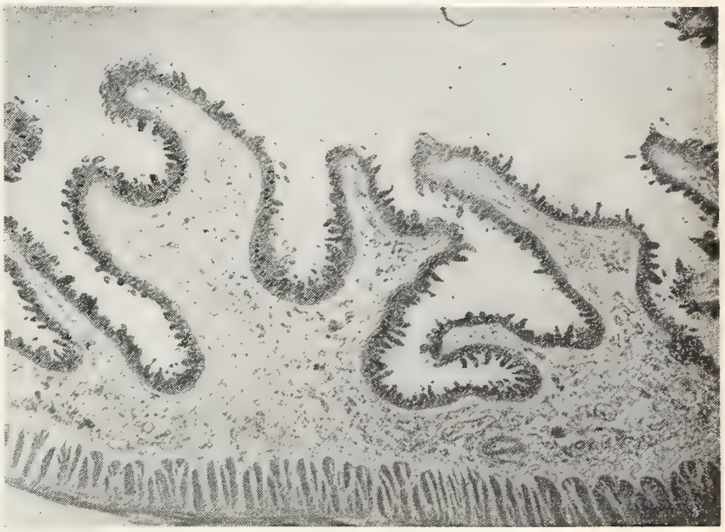

Fig. 4. Edema of the intestine due to hypoproteinemia in subacute yellow atrophy of the liver. The total blood protein was 5.0, albumin 3.1. The fluid is collected in the submucosa, not within the mucous membrane, and has produced a widening of some of the folds. This widening of the folds can sometimes be detected on films of the gas-distended intestine. The separation of the bundles of circular muscle is the result of artefact, not of edema. (*Courtesy of Dr. Edith Sproul.*)

Gas Distention with Disease of the Intestinal Wall

It seems advisable to point out that certain organic diseases of the wall of the intestine or of the mesentery may be associated with gas distention and that this may be differentiated with difficulty from gas distention of functional origin. Three organic diseases are worthy of mention in particular.

Scleroderma may involve the digestive tract. The esophagus is the most frequent site. However, Hale and Schatzki[8] found dilatation of the small intestine with a slow transit time in four of twenty-two patients with scleroderma. In one case prostigmine and in another mecholyl, a derivative of acetylcholine, failed to produce an effect. The lack of response to mecholyl is particularly significant and indicates that the intestinal wall is incapable of responding to acetylcholine and therefore to parasympathetic stimulation.

Amyloidosis of the intestine may give the picture of ileus and may result in operation for intestinal obstruction.[18]

Dr. R. A. Powers, Palo Alto, California, sent me films and pathologic material on a patient in whom the symptoms of mechanical ileus were present. Microscopic examination of the wall of the intestine showed amyloid deposits in the intramural nerve ganglia as well as replacing muscle fibers.

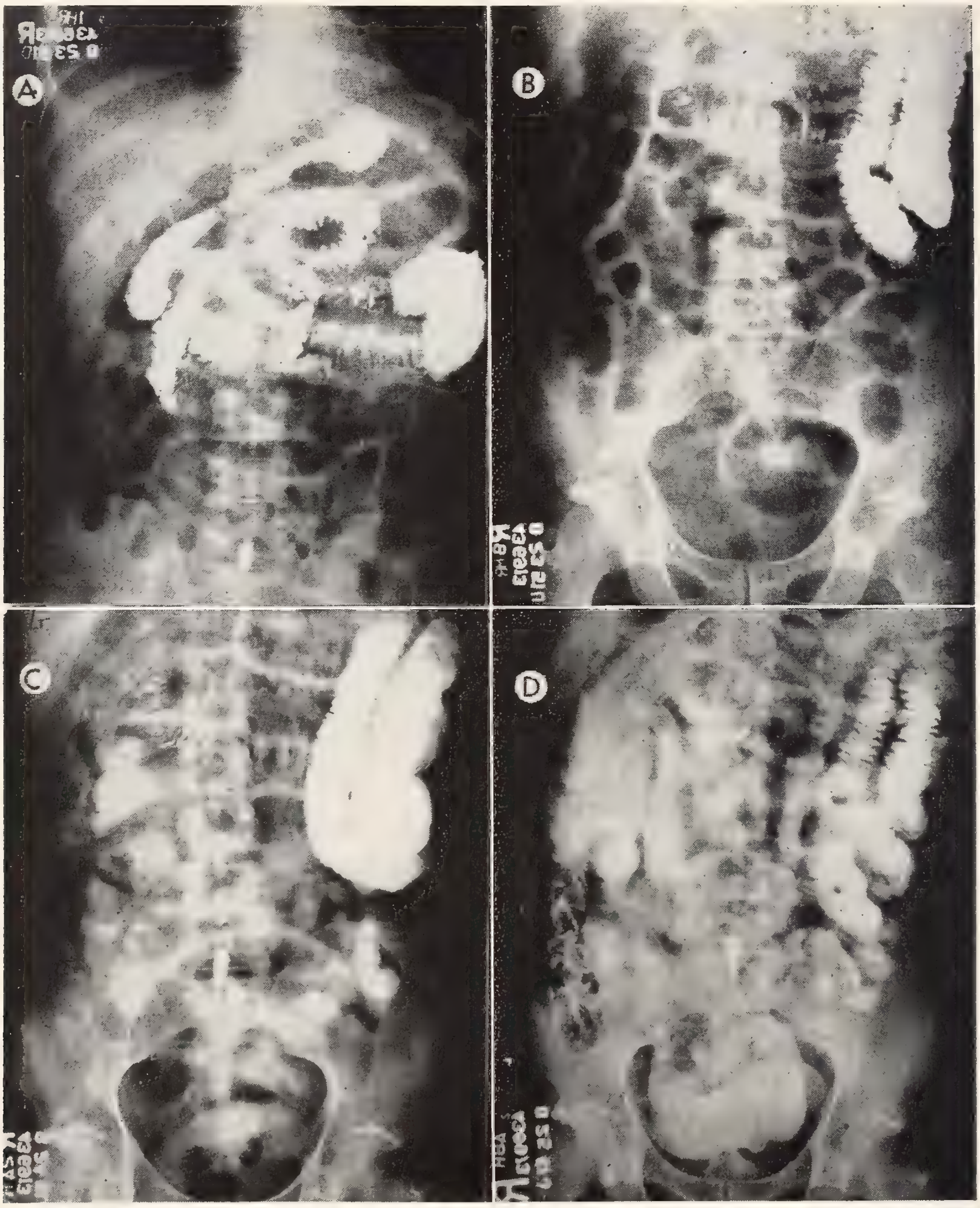

Fig. 5. Slow movement of barium in amyloidosis of the intestine. (*A.*) One hour after taking barium. The proximal loops of jejunum are filled and show wide mucosal folds. (*B.*) At eight hours the head of the barium column is in the middle of the jejunum. The thickness of the wall of the intestine is well shown on this film. (*C.*) At twenty-four hours a little barium is distributed through the ileum, but most of it still remains in the jejunum. (*D.*) At forty-eight hours most of the barium remains in the jejunum and ileum. Very slow movement of intestinal contents does not necessarily mean obstruction but, as in this case, may result from inability of the intestine to contract. The pateint was a man aged forty-two (Unit No. 048643) with albuminuria for ten years, mild neurological symptoms two years, and abdominal symptoms only about four months. Amyloidosis was shown by biopsy of the gum and two months later at autopsy.

A recent patient at the Presbyterian Hospital had persistent gas distention for several weeks and a very slow transit time, with no response to prostigmine or to urecholine (Fig 5). Lack of response to this derivative of acetylcholine suggested that possibly the muscle was unable to react because of disease of the intestinal wall. For this reason, amyloidosis was suggested as one possible explanation, and two months later at autopsy the intestinal wall was found to be extensively involved by amyloid. This case illustrates the importance of approaching the problem of diagnosis of intestinal disorders from a physiologic standpoint and the value of tests with physiologic drugs in the search for explanations of these disorders.

Organic disease of the mesentery may cause gas distention and very slow movement of the intestine. In one case reported by me tremendous dilatation of the ileum was associated with and apparently caused by carcinomatous infiltration of the mesentery from linitis plastica carcinoma of the stomach demonstrated at operation.[7] Several months later the intestine on x-ray examination appeared normal in width. This patient died elsewhere about nine months later. A hypothetical explanation can be offered on the basis of denervation of the intestine by the carcinomatous infiltration of the mesentery and the resulting increased sensitivity to adrenalin of the intestinal musculature which would produce dilatation. This sensitivity has been shown in animal experiments to decrease with the passage of time. The interesting phenomena of denervation are described at length by Cannon and Rosenblueth[4] and by Youmans.[24]

Other diseases of the mesentery may cause moderate dilatation of the intestine with little or no gas distention, e.g. sclerosing mesenteritis, and regional enteritis with fibrosis of the mesentery.[6]

Summary

Familiarity with certain aspects of the motor physiology is a necessary approach to an understanding of some of the disorders of the small intestine encountered in x-ray examinations. Neuromuscular physiology and the chemical mediator theory are particularly important.

Excessive influence of the parasympathetic based on emotional reactions can produce rapid passage of intestinal contents through both small and large intestines with diarrhea, hypertonicity, functional intussusception and can apparently also provide the background for allergic reactions.

Parasympathetic inhibition with slowing of intestinal movement and reduction of tonus can be produced by parasympathetic inhibitors, particularly by a new drug "banthine." Too much parasympathetic inhibition may result in gas distention, a type of paralytic ileus. Evidence has been presented that adrenaline and therefore sympathetic stimulation prevents the action of acetylcholine on the muscle.

Parasympathomimetic action can be produced by inhibiting acetylcholine esterase and preventing the destruction of acetylcholine, provided sufficient acetylcholine is present. Injection of an acetylcholine esterase inhibitor may be used as a rough test to indicate whether acetylcholine is present in approximately normal amounts. In some patients administration of an acetylcholine derivative is necessary to get a parasympathomimetic effect.

Gas distention of the intestine may result from a number of causes, which apparently inhibit movement by depressing the effect of the parasympathetic. This has been seen (1) with severe pain in the back and with acute peritonitis, apparently through the mechanism of excessive stimulation of the sympathetic; (2) with hypoproteinemia; (3) with hypopotassemia; (4) with an apparent lack of acetylcholine in the intestinal wall of unknown origin and relieved by giving urecholine.

Gas distention is also seen with certain organic diseases of the intestine, (1) scleroderma, (2) amyloidosis, (3) carcinomatous infiltration and probably other disease of the mesentery.

References

1. Arai, K.: Experimentelle Untersuchung über die Magen-Darmbewegungen bei akuter Peritonitis. Arch. f. Exp. Path. u. Pharmacol., 94:149-189, 1922.
2. Bayliss, W. M., and Starling, E. H.: Movements and innervation of the small intestine. J. Physiol., 24:99, 1899.
3. Bullock, T. H., Nachmansohn, D., and Rothenberg, M. A.: Effects of inhibitors of choline esterase on the nerve action potential. Jour. Neurophysiol., 9: 9-22, 1946.
4. Cannon, W. B., and Rosenblueth, A.: The Supersensitivity of Denervated Structures. New York: The Macmillan Co., 1949.
5. Falor, Wm. H.: Multiple intussusceptions, direct and retrograde, of traumatic origin. Ann. Surg., 127:730, 1948.
6. Golden, Ross: Radiologic Examination of the Small Intestine. Philadelhhia: J. B. Lippincott Co., 1945.
7. Golden, Ross: Some clinical problems in small intestinal physiology (Mackenzie Davidson Memorial Lecture, 1950). Brit. J. Rad., 23:390 (July) 1950.
8. Hale, C. H., and Schatzki, R.: Roentgenologic appearance of gastro-intestinal tract in scleroderma. Am. J. Roentgenol., 51:407 (Apr.) 1944.
9. Ingelfinger, F. J., and Moss, R. E.: Motility of the small intestine in sprue. J. Clin. Investigation, 22: 345, 1943.
10. Keith, Rockwood: Personal communication, 1949.
11. Kuntz, Albert: The autonomic nervous system. 3rd ed. Philadelphia: Lea & Febiger, 1945.

(Continued on Page 957)

INTRA-ARTICULAR USE OF HYDROCORTISONE IN RHEUMATIC DISEASES

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ADEQUATE evidence is available that cortisone exerts a definite anti-inflammatory action on many tissues in their response to physical trauma, chemical irritation, infection, and hypersensitivity.[1] This non-specific ability to suppress the signs of inflammation is also shared by the closely related compound hydrocortisone. Corticotropin, which stimulates the adrenal cortex to produce these and other compounds, exerts a similar effect. In some instances, as in certain bacterial and viral diseases, this repression of the inflammatory response can be harmful in that it prevents the development or maintenance of a natural barrier to the spread of infection. In many other instances, however, especially in the group of disorders designated "collagen diseases," and in various allergic phenomena, which are associated with sterile inflammation, these drugs have a beneficial and at times life-saving value.

In addition to its effectiveness by systemic administration, the local application of cortisone has demonstrated an anti-inflammatory effect in various diseases of the eye[7] and the skin.[2] Hollander et al[4] extended the use of cortisone to intra-articular injection in patients with arthritic diseases. They found only a mild local suppressive action from cortisone, but hydrocortisone produced a very marked local anti-inflammatory effect. Their patients with osteoarthritis received benefit for an average of three weeks and patients with rheumatoid arthritis received benefit for an average of about eight days following one injection of 25 mg. hydrocortisone acetate.

The purpose of this report is to present in some detail the results of the local use of hydrocortisone acetate in a group of arthritic patients in order to define more clearly the place of this new agent in the therapeutic armamentarium of the medical practitioner.

Method of Study

Fifty-seven patients were given a total of ninety-two intra-articular injections of which seventy-six were hydrocortisone acetate and sixteen were cortisone acetate. Twenty-eight patients had rheumatoid arthritis, twenty-four patients had osteoarthritis, three patients had periarthritis of the shoulder, and one each had chronic gouty arthritis and staphylococcal septic arthritis. The greatest number of injections were into the knee joint; next most frequent was the hip joint; and there were two elbow and one wrist injections. All injections were performed as out-patient clinic or office procedures. Initially, procaine was used for local anesthesia, but in a short time it was felt that most injections could be done without this preliminary step, especially if a 22-gauge needle was used. It is the author's impression that injection of the knee joint from the lateral direction is less painful than medial injection.

The dosage used in the majority of instances was 37.5 or 50 mg. of hydrocortisone acetate suspended in a saline solution at a concentration of 25 mg. per cc.* A few injections of as high as 87.5 mg. were given but there appeared to be no essential difference in the degree of relief or its duration with these various doses. In several of the earlier rheumatoid arthritic patients who were given just 25 mg. of hydrocortisone acetate, it was the impression that the duration of benefit was two to three days shorter than when the larger dosage was given, although in a few instances this difference was not observed.

The dosage of cortisone acetate* was 100 mg. in all instances except one, when 50 mg. was given to a patient who previously had experienced a moderate flare in her knee joint for twelve hours after injection of 100 mg. This injection also produced a flare which, however, lasted only six hours. Each flare was immediately followed by marked local improvement. This transient and apparent irritative action of the cortisone acetate was observed in one other patient.

In patients with rheumatoid arthritis the objective criteria such as joint swelling, tenderness and increased range of motion, following the intra-articular injection of these compounds were so obvious that it was felt that there was little

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*Supplied through the courtesy of Merck and Company.

TABLE I. RESULTS IN TWENTY-THREE PATIENTS WITH RHEUMATOID ARTHRITIS TREATED WITH INTRA-ARTICULAR HYDROCORTISONE ACETATE.

Grade of relief.	No. patients.	Average Duration of relief in days.
0	1	0
1 (10-25%)	1	4
2 (25-50%)	4	8 -12
3 (50-95%)	16	10-21
4 (essentially complete relief)	1	28

need for control placebo injections. Nevertheless, saline was injected in two patients who had obtained definite improvement from hydrocortisone, one of whom also obtained benefit from cortisone, and in neither instance was any subjective or objective change noticed. Also, with few exceptions, repeated injections of the same steroid in the same patient produced strikingly similar responses. In osteoarthritis, however, a very different situation pertains. Evaluation of these patients rests almost entirely on subjective phenomena. By very careful inquiry as to the distance the patient can walk without pain, the time it takes to limber up after a rest period, the disappearance of a limp, etc., these subjective data can be rendered quite valuable, but the marked spontaneous variation in symptoms which these patients experience is familiar to patient and physician alike. Therefore, in four patients with osteoarthritis of the hip joints who had obtained some benefit from hydrocortisone, control injections of saline were made in three and procaine was used in the fourth. In all instances, a comparable degree of improvement followed the control injection. In one patient, an objective increase in hip flexion by 15 degrees followed each procedure. One sixty-six-year-old man with severe osteoarthritis of the knees (including the presence of multiple loose bodies) obtained no relief following an intra-articular injection of 1 cc. of 1% procaine. On five other occasions he has obtained marked relief lasting two to four weeks following injections of cortisone or hydrocortisone. Two patients with mild chronic osteoarthritis of both knees received 1 cc. of saline in one knee and 50 mg. hydrocortisone in the other knee: one patient reported a mild improvement, estimated at 5 to 10%, in each knee; the other reported no improvement in either knee. It is apparent, therefore, that the interpretation of uncontrolled observations, especially in patients with chronic osteoarthritis treated with this or any agent is difficult and hazardous.

TABLE II. RESULTS IN SEVEN PATIENTS WITH RHEUMATOID ARTHRITIS TREATED WITH INTRA-ARTICULAR CORTISONE ACETATE.

Grade of relief	No. patients	Average duration of relief in days
0	2	0
1	0	0
2	2	7
3	2	7
4	1	28 plus

Rheumatoid Arthritis

Twenty-three patients with rheumatoid arthritis were given intra-articular injections of hydrocortisone acetate into their knee joints. The results are summarized in Table I.

In one patient no effect was noticed and in another only a minimal improvement was recorded. All other patients noticed very appreciable subjective and objective improvement. The improvement was limited to the injected joint and in several instances coincidental flares occurred in other joints. Some patients noticed improvement within four to six hours, most patients were aware of improvement within twelve hours after the injection, and all noticed it by twenty-four hours. Maximal subjective improvement occurred by the second day, and this was usually the time that the knee joint swelling and tenderness was at a minimum. This state then persisted for seven to twelve days, when gradual return of swelling and pain occurred over the next three to seven days. In a few patients, the return of symptoms was more rapid, and in several patients, there was some persistent improvement for several weeks. No significant declines in sedimentation rate were noticed. No adverse local or systemic reactions were observed.

In addition to the knee joint injections, two patients were given 50 mg. hydrocortisone acetate into involved elbow joints. A grade 3 improvement occurred in each case which lasted over three weeks. Some persistent benefit was present one month and one and a half months later respectively. Another patient was given 25 mg. hydrocortisone acetate into the medial aspect of a swollen right wrist. A grade 2 improvement, localized to just the medial half of the wrist, occurred, and lasted for one week.

Seven patients with rheumatoid arthritis were given a total of fourteen intra-articular injections of cortisone acetate into their knee joints. The results are summarized in Table II.

Two patients, on a total of four occasions, developed increased pain lasting six to twelve hours after the injections, but each such episode was then followed by a grade 3 improvement lasting four to nine days. One patient obtained a complete remission of knee joint symptoms following a single injection of 100 mg. of cortisone acetate. There then developed rather rapid improvement in the patients other joints. This coincidental spontaneous remission was still in evidence nine months later.

It is apparent that while cortisone acetate has a definite local anti-inflammatory effect, its action is less reliable and only about half that of hydrocortisone acetate.

The practical value of this procedure in rheumatoid arthritis is subject to serious limitations. In most patients, the disease process is polyarticular, and rather little is to be gained from temporary improvement in just one or two joints. However, there are definite instances of marked value. A case in point is a young nurse whose most serious involvement is the right knee, and by injecting this joint every third week she has been able to continue work. In several instances the local injection of hydrocortisone acetate seems to have facilitated the employment of physical therapy and the more rapid reduction of knee flexion contractures.

Knee joint synovial biopsies,[6] before treatment, were performed in six patients. In three patients, repeat biopsies were performed on the fifth or seventh day after the intra-articular injection of hydrocortisone acetate. A slight decrease in the tissue reaction was thought to be evident in one patient but no change occurred in the other two. One of these patients was then continued on weekly intra-articular injections of 50 mg. hydrocortisone acetate despite the non-return of symptoms. A week after the third injection, or after an asymptomatic period of three weeks, the biopsy was repeated. The improvement in the histologic picture is evident from the comparative biopsies (Figs. 1, 2, 3). Peculiarly, the patient's knee joint improvement persisted for over one month following her fourth and last weekly injection, whereas on two previous occasions improvement lasted only ten to fourteen days. This raises the question as to the possibility of producing more marked, and perhaps longer enduring, improvement through the continuous suppression of the local tissue reaction for a month or more.

TABLE III. RESULTS IN EIGHT PATIENTS WITH OSTEOARTHRITIS OF THE HIPS TREATED WITH HYDROCORTISONE ACETATE.

Grade of relief	No. patients	Average duration of relief in days
0	3	0
1	2	3
2	1	10
3	1	21
4	1	28 plus

Recently Goldman, O'Hara and Baskett[3] have reported the detection of crystals of cortisone and hydrocortisone some months after their injection into the normal skin of man.

Osteoarthritis

Twenty-four patients with osteoarthritis were given intra-articular injections of hydrocortisone acetate. One of these patients also was given cortisone acetate intra-articularly. Sixteen of the patients had osteoarthritis of the knees; eight had osteoarthritis of one or both hips. Knee joint biopsies were performed in two patients who seemed to have somewhat greater synovial reaction than is ordinarily seen in osteoarthritis. In each instance the histologic picture was consistent with that seen in osteoarthritis.

The results in the eight patients with hip involvement are summarized in Table III.

The one patient who obtained a complete remission of symptoms was a man, fifty-six years old, who twisted his left hip while bending over to inspect a roller in a paper mill. He developed immediate hip pain which recurred on any attempt to bend or to bear weight on the left hip. Physical examination showed slight limitation in flexion and abduction of the left hip, and x-ray examination showed slight narrowing of the hip joint space with minimal hypertrophic spurring. The patient had been disabled from work for four months. Twelve hours after the injection of 37.5 mg. hydrocortisone acetate into the left hip joint (checked by film while the patient was on the x-ray table), there was complete relief of symptoms and the patient returned to work in a few days. He continued to be without symptoms, and physical examination was normal, one month later. Three patients obtained no relief from the injection of hydrocortisone acetate. Of the remaining four patients who obtained some relief, all were subsequently given placebo injections. In each instance, the placebo injection duplicated the result of the steroid. It is apparent, therefore, that with the

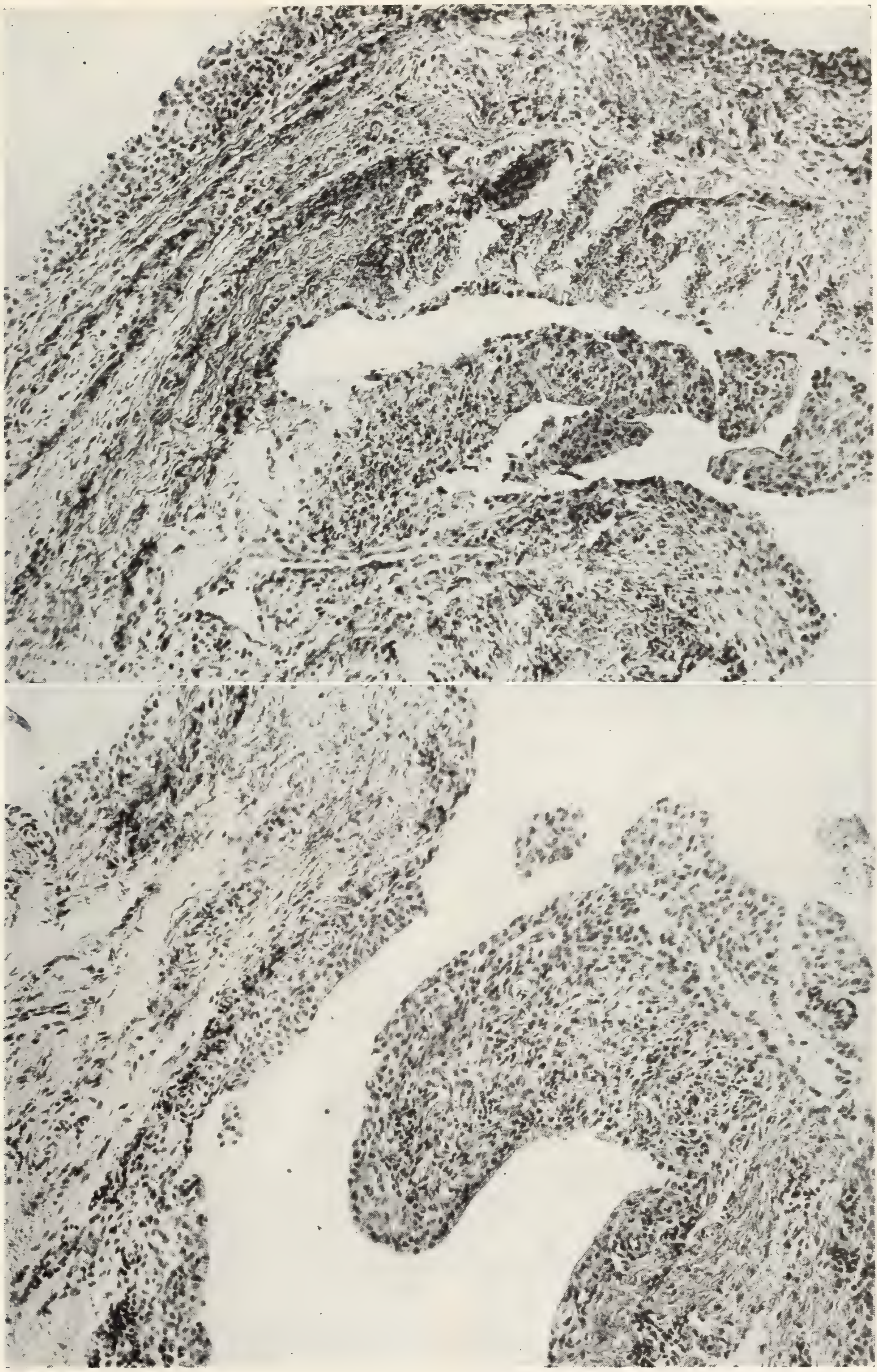

Fig. 1. Microscopic section (x 50) of synovium right knee before treatment.
Fig. 2. Synovium five days after intra-articular injection of 50 mg. hydrocortisone acetate showing no essential change.

TABLE IV. RESULTS IN SIXTEEN PATIENTS WITH OSTEOARTHRITIS OF THE KNEES TREATED WITH HYDROCORTISONE ACETATE.

Grade of relief	No. patients	Average duration of relief in days
0	3	0
1	1	7
2	5	14
3	4	21 plus
4	4	28 plus

one exception of the patient with a traumatic arthritis superimposed on a minimal osteoarthritis of the hip, the beneficial effect of hydrocortisone acetate in chronic osteoarthritis of the hip joint is in doubt.

The results in sixteen patients with osteoarthritis of the knee joints are given in Table IV.

The total in Column 2 is 17 due to the fact that one patient had no benefit following the injection of 50 mg. hydrocortisone acetate into her left knee which was only mildly involved, while she experienced a grade 2 improvement following a similar injection into her right and more severely involved knee joint—although a previous injection of procaine into this same knee gave no relief. Of the eight patients who obtained a grade 3 or grade 4 improvement, all gave past histories of essentially asymptomatic or only mildly involved knee joints with more recent flares in knee pain as a result of excessive physical activity. A typical case history is as follows:

A male factory worker, sixty-seven years old, had had for the previous three years occasional episodes of mild aching in both knees, especially noticeable toward the end of his work days. One evening, following the shoveling of a 10-inch snowfall from his front walk, he experienced a marked increase of pain in the right knee. The next morning he went to work but after being on his feet for just one hour the pain had so increased that he had to be taken home. Physical examination that afternoon revealed moderate limitation in joint motion apparently due to muscle guarding, and slight medial joint tenderness. X-ray of the knee revealed extensive hypertrophic spurring and fairly marked medial narrowing of the joint space. The patient was placed at absolute bed-rest and the symptomatic use of heat, codeine, and aspirin were prescribed. On the fifth day, there was less pain at rest and passive motion of the knee was more free, but weight bearing still elicited severe pain. At this time 37.5 mg. hydrocortisone acetate was injected into the right knee joint. Ten hours later the patient was able to bear his full weight on the right knee without pain. The knee was normal on physical examination two days later. The patient returned to work on the third day and he has continued well except for the occasional return of the mild aches he had experienced in the past.

One of the patients who on two occasions obtained a grade 3 improvement from hydrocortisone lasting two to three weeks, was given an intra-articular injection of cortisone acetate. After a localized flare lasting twelve hours, he experienced a grade 2 relief which lasted ten days.

A striking fact emerged from the analysis of the data in the group of patients with osteoarthritis of the knee joints: the poor or minimal results were in those patients with a chronic and on the whole a relatively mild degree of disability, while the excellent results were, without exception, in patients who had acute or subacute flares superimposed on their chronic osteoarthritis. In most of these latter patients a definite traumatic event could be brought out from their histories, and the improvement usually was complete in patients who had no symptoms before their trauma, while those patients with chronic low grade symptoms usually were restored to their previous state of mild disability. This would appear to indicate that hydrocortisone acetate is of the greatest value in suppressing the acute inflammatory reactions of trauma rather than the minimal and gradual type of tissue reaction that is more characteristic of chronic osteoarthritis. The dramatic improvement reported in a few instances of acute traumatic joints in young individuals treated with hydrocortisone would appear to support this concept.[5]

Other Rheumatic Conditions

One patient with chronic gouty arthritis was given 37.5 mg. hydrocortisone acetate into the right knee joint. An improvement graded as 2 plus occurred within twelve hours and persisted for about two weeks when he began to experience improvement in the other knee and several additional involved joints as a result of the interim gout therapy. This generalized improvement has continued under the program of a low purine diet and salicylates.

One patient with septic arthritis of the knee, secondary to a severe staphylococcal cellulitis of the forearm, was treated with the intra-articular injection of hydrocortisone acetate. The injection was made during the convalescent period when there was no longer evidence of active knee joint infection, but while there was persistent severe pain which prohibited weight bearing and which interfered with the attempts of physical medicine to restore a normal range of motion. Within six hours after the injection of 50 mg. hydrocortisone acetate the knee was less painful and by twenty-four hours full weight bearing was possible. A grade 3 improvement which lasted for five days permitted the discharge of the patient from the hospital and the continuation of physical therapy as an out-patient. By ten days much of the knee pain returned but this was again relieved by a second injection of 50 mg. hydrocortisone.

Three patients with acute periarthritis or so-called "bursitis" of the shoulder were treated by the injection of 25, 30, and 37.5 mg. of hydrocortisone acetate respectively into the localized area of acute tenderness. One patient noticed about a 25 per cent improvement within twenty-four hours, and she then gradually recovered in two weeks. The other two patients received no help from the injection. One patient subsequently made a good response to x-ray treatment.

Summary and Conclusions

1. The injection of 37.5 to 50 mg. hydrocortisone acetate into the joints of twenty-three patients with rheumatoid arthritis produced a moderate to marked local improvement in symptoms and objective findings in 90 per cent of patients which lasted from one to two weeks.

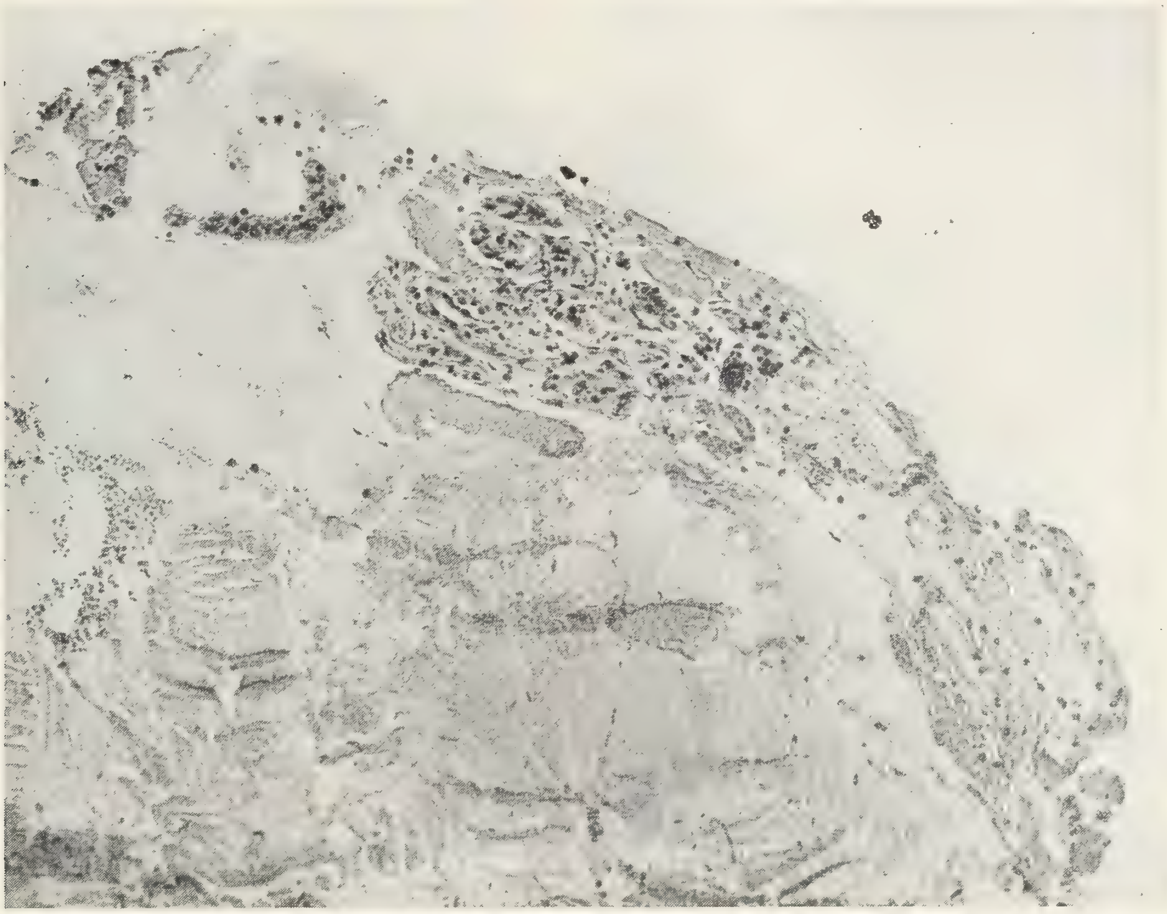

Fig. 3. Synovium, from the microscopic field showing the greatest cellular reaction, taken twenty-one days after starting weekly injections of 50 mg. hydrocortisone acetate.

2. Histologic study of the synovium in a small group of cases showed rather little comparative change in the local tissue reaction with the exception of one patient who was given weekly injections and who after three weeks showed definite evidence of microscopic "healing."

3. The injection of cortisone acetate in doses of 100 mg. into the joints of seven patients with rheumatoid arthritis produced an effect about half that of hydrocortisone. In addition, a temporary local irritation occurred in two patients.

4. In osteoarthritis of the hip joints there is much doubt as to the value of local injections of hydrocortisone. The importance of controlled studies is emphasized.

5. In osteoarthritis of the knees hydrocortisone acetate appears to be of little value in the average case of chronic, low grade activity. However, in patients who are experiencing acute or subacute flares in symptoms as a result of recent trauma, etc., the local injection of hydro-

(Continued on Page 968)

SEGMENTAL RESECTION IN THE TREATMENT OF INFLAMMATORY PULMONARY LESIONS

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IN 1939, Churchill and Belsey[5] demonstrated and reported segmental resection in the treatment of inflammatory lesions in the lung. Many surgeons were reluctant to employ segmental resection in preference to lobectomy because of higher incidence of postoperative complications that occurred with segmental resection. Many of the residual segments functioned improperly due to kinking or interference with the bronchi, and also due to interference with the blood supply of the small residual segments. Important refinements in the technique of segmental resection have been made by Overholt,[7] Claggett,[6] Blades,[1] Ramsey[8] and others, so that at the present time, great stress is laid upon the necessity for accurate, anatomical, intersegmental dissection of the segments. With present-day techniques, it is possible to completely excise the diseased segments with no distortion of the anatomy or impairment of the bronchial or blood supply to the adjacent segments. Improvements in the technique of operation, the wider range of antibiotic drugs available, increased knowledge of the intersegmental anatomy[2,6] and the increased familiarity with this operation have all led to a reduction in the morbidity following this operation, so that at present segmental resection can be carried out with as few major complications as lobectomy. The incidence of minor complications still remains somewhat higher with segmental resection than with lobectomy.

Segmental resection has certain advantages over lobectomy. It provides a method by which the diseased tissue can be excised with minimal interference with pulmonary function. This factor becomes of great importance when operating on patients with poor or reduced pulmonary reserve. There are many occasions in which the diseased pulmonary segments are not confined to one lobe, but are scattered throughout several lobes of both lungs. In such cases, segmental resection offers the only possible surgical approach which will allow complete eradication of all the diseased tissue.

Bronchiectasis will often be distributed in characteristic patterns. Rather commonly one sees involvement of the basilar segments of both lower lobes; the lingula of the left upper lobe and the right middle lobe. The superior segments of the lower lobes usually are uninvolved and have undergone marked enlargement and hypertrophy at the expense of the contracted diseased segments (Fig. 1). Segmental resection here affords a methods of excision of all diseased segments, with preservation of sufficient functioning pulmonary tissue to avoid severe respiratory crippling. It is essential that the bronchogram show all branches of the bronchial tree, as the surgeon cannot palpate the diseased segments at operation.

We have outlined a number of these small residual segments by attaching metal radio opaque markers to their margins during the operation. Postoperative chest x-rays demonstrate normal expansion. These segments obviously function very well as space-fillers. This fact alone would justify preserving small segments in order to prevent overexpansion of the adjacent lobes and thus improve the pulmonary function. There is good indirect evidence obtained by differential bronchiospirometry that these residual segments function normally as efficient respiratory organs.

Surgeons have been slow to utilize segmental resection for known tuberculous lesions. There has been a reluctance to dissect near caseous tuberculous foci for fear of producing tuberculous empyema and spread of the disease. Experience has shown that this violation of tuberculous tissue has, to date at least, not been productive of demonstrable harmful effects.[3,4] Segmental resection, combined with local excision, appears to be of great value in the eradication of multiple, scattered, bilateral, caseous, cavitary, tuberculous foci. (Figs. 2, 3 and 4).

Limited excision of tuberculous foci has been carried out in a number of patients who have

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residual caseous foci, in order to reduce the incidence of reactivation and spread that is known to occur in this group. (Figs. 5 and 6).

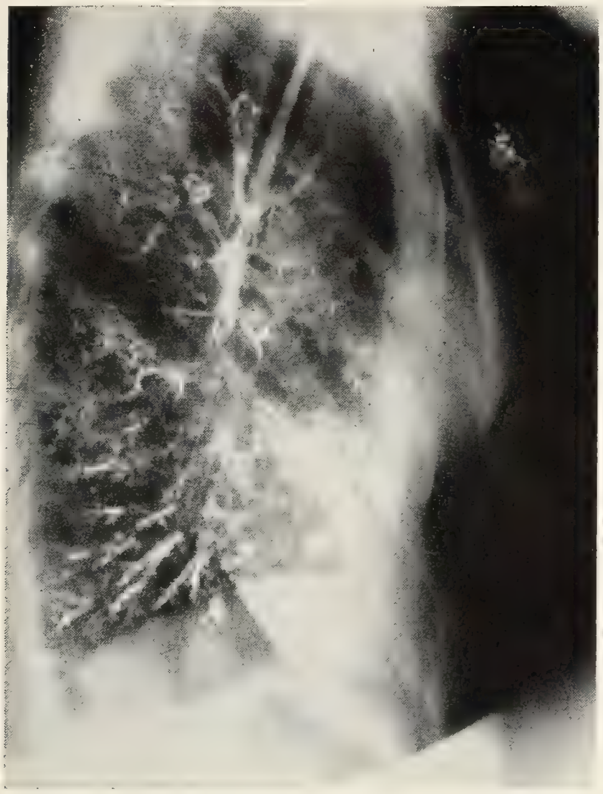
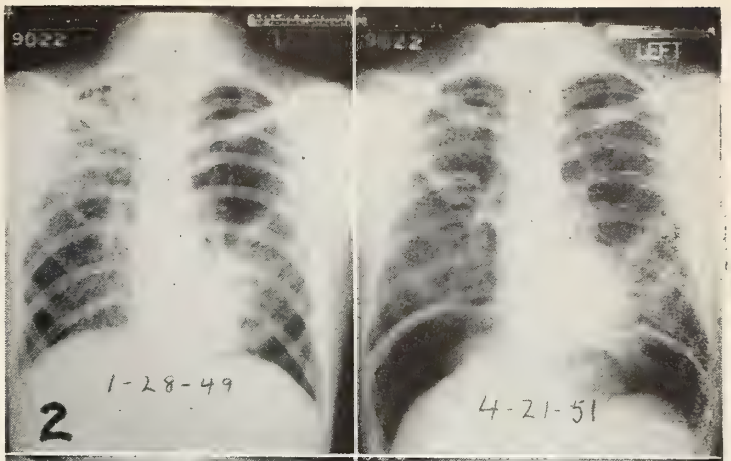
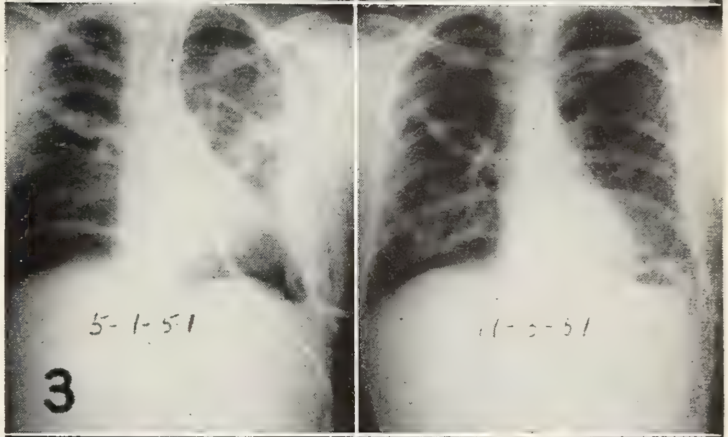


Fig. 1. Bronchogram of right lung showing Bronchiectatic basal segments with normal superior segment bronchi. Middle lobe bronchi are also involved. Note overexpansion of the superior segment of the right lower lobe.

Finally, a third group has been subjected to localized or segmental resection of residual tuberculous lesions in preference to thorocoplasty, since resectional therapy will be more saving of pulmonary function, with a somewhat greater incidence of sputum conversion.

A summary of eighty-four resections on the author's service from March, 1951, to February, 1952, at Glen Lake Sanatorium reveals that fifty-eight primarily segmental resections were done in fifty-one patients. Of this group of fifty-one patients, thirty-one had bilateral involvement. One patient died as a result of cardiac arrest, giving a patient mortality rate of 1.9 per cent, and a mortality rate per operation of 1.7 per cent. Of the fifty survivors, four (8 per cent), had severe complications, consisting of one contralateral spread, one broncho-pleural fistula (now closed), one residual cavity in a patient who also developed uremia with convulsions as an exacerbation of pre-existing severe nephritis, and one who has a questionable recurrence at the site of the previous local excision.





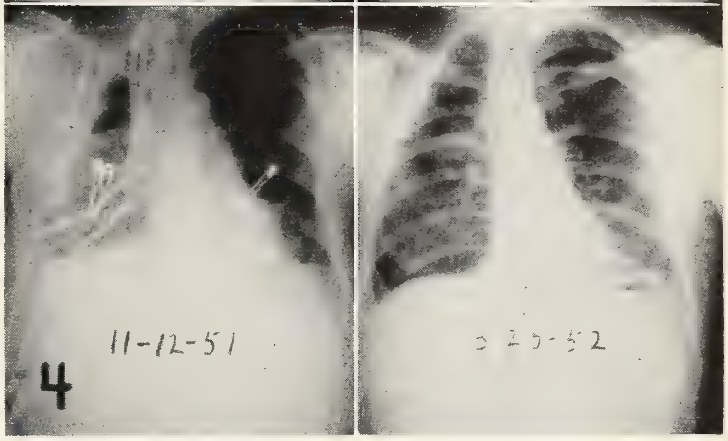
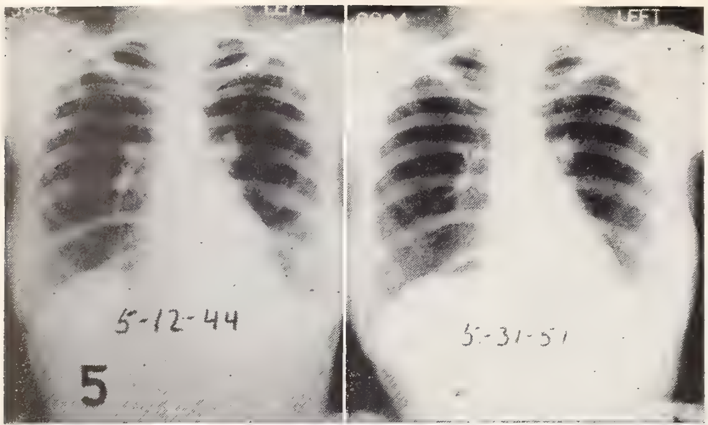


Fig. 2. L.G. *(left)* Admission film showing extensive bilateral tuberculosis with cavitation. *(Right)* Preoperative film twenty-seven months after admission. Had bedrest and pneumoperitoneum plus tibione.

Fig. 3. L.G. *(left)* Immediate postoperative x-ray. Excision of nodules in left lower lobe and segmental resection lingula of left upper lobe. *(Right)* Film six months after first resection. Vital capacity 3,200 cc. The left lung contributes 50 per cent of vital capacity and has better oxygen uptake than the right.

Fig. 4. L.G. *(left)* Immediate postoperative x-ray after right upper lobe lobectomy, segmental resection of portion of right middle lobe, and excision of nodules in right lower lobe. *(Right)* X-ray after bilateral resection. He has had five gastric cultures since operation, all negative for tubercule bacilli.

Seven patients had minor complications consisting of residual air pockets which persisted for varying lengths of time. One of these patients had a small thorocoplasty done ten days after the resection; the remainder were treated expectantly



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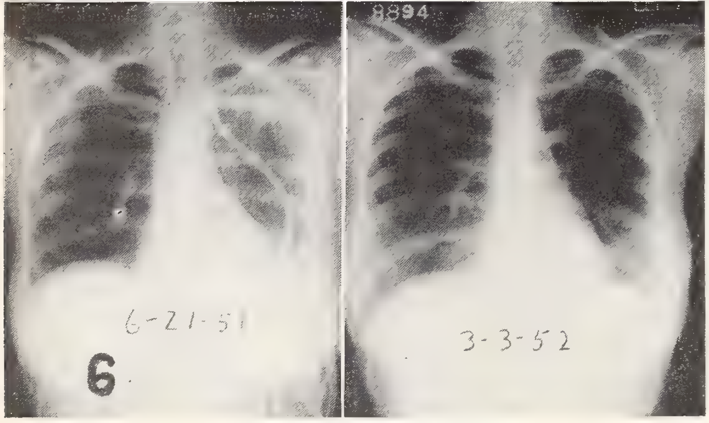

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Fig. 5. P.H. *(left)* Note fibronodular disease in left upper lobe. This patient has had intermittantly positive sputum with activity since 1941, despite prolonged sanitarium care. *(Right)* Preoperative film showing residual fibronodular disease in left upper lobe. Gastric cultures positive for acid-fast bacilli.

Fig. 6. P.H. *(left)* Immediate postoperative x-ray after resection of segment of left upper lobe. *(Right)* Late postoperative film. Six gastric cultures have all been negative for tubercule bacilli.

or by aspiration with eventual obliteration of the pleural space.

A number of factors are present which make interpretation of the postoperative sputum status difficult. The period of follow-up is too short; many of the patients are awaiting surgery on the contralateral lung. Some have converted to negativity as a result of their medical management, especially with the use of streptomycin therapy prior to surgery, and are still on antibiotic therapy to control small residual foci.

Twenty-three patients have cultures running; one patient died. This leaves twenty-seven available for study at the present time. Of these twenty-seven, eighteen (66 per cent) have had negative sputum and gastric cultures; five (18 per cent) have had an occasional positive culture. Two (7.4 per cent) have positive cultures but are improved, and two (7.4 per cent) have positive cultures with x-ray evidence of active disease. These conversion rates compare favorably with the early studies of conversion rates following lobectomy.

References

1. Blades, Brian: Conservation of lung tissue by partial lobectomy. Ann. Surg., 118:353-365, 1943.
2. Boyden, E. A., and Scannell, J. G.: An analysis of variations in the bronchovascular pattern of the right upper lobe of fifty lungs. Am. J. Anat., 82:27-74, 1948.
3. Chamberlain, J. M., and Klopstock, Robert: Further experiences with segmental resection in tuberculosis. J. Thoracic Surg., 18:843-951, 1950.
4. Chamberlain, J. M., and Ryan, C. H.: Segmental resection in pulmonary diseases. J. Thoracic Surg., 19:199-206, 1950.
5. Churchill, Edw. D., and Belsey, Ronald: Segmental pneumonectomy in bronchiectasis. The lingula segment of the left upper lobe. Ann. Surg., 109:481, 1939.
6. Clagett, O. T., and Deterling, R. A., Jr.: Technique for segmental pulmonary resection with particular reference to lingulectomy. J. Thoracic Surg., 15:227, 1946.
7. Overholt, R. H., and Langer, L.: A new technique for pulmonary segmental resection. Surg., Gynec. & Obst., 84:257, 1947.
8. Overholt, R. H.; Woods, F. M., and Ramsay, B. H.: Segmental pulmonary resection. J. Thoracic Surg., 19:207-225, 1950.

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The National Foundation for Infantile Paralysis announces the availability of a limited number of additional postdoctoral fellowships to candidates whose interests are research and teaching in medicine and the related biological and physical sciences. The purpose of these National Foundation fellowships is to increase the number of professional workers qualified to give leadership in the solution of basic and clinical research problems of poliomyelitis and other crippling diseases.

The fellowships cover a period of from one to five years. Stipends to Fellows range from $3,600-$7,000 a year, with marital and dependency status considered in determining individual awards. Institutions which accept Fellows receive additional compensation for expenses incurred in relation to their training programs.

Eligibility requirements include United States citizenship (or the declared intention of becoming a citizen), sound health and an M.D., Ph.D., or an equivalent degree.

Selection of candidates is made by a Fellowship Committee composed of leaders in the fields of research and professional education. The designation "Fellow of The National Foundation for Infantile Paralysis" will be given to successful candidates.

A total of 144 fellowship awards in these categories have been made by the National Foundation up to August 31, 1952.

Complete information concerning qualifications and applications may be obtained from: Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

AUREOMYCIN IN INFECTIONS OF THE URINARY TRACT

A Clinical and Bacteriologic Study

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and
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DURING the past five years the discovery and development of new antibiotic agents have been so rapid that a precise knowledge of their effectiveness and clinical applicability has sometimes failed to keep pace. Since 1946, when penicillin came into general use, streptomycin, aureomycin, chloramphenicol, terramycin, polymyxin and neomycin have swiftly appeared, each with its own special therapeutic value and unlimited prospects for the future.

One of the latest antibiotics, aureomycin, was first isolated by Duggar from the yellow pigment-producing mold Streptomyces aureofaciens in 1947 but was not described by him until 1948 when he reported his work before the New York Academy of Sciences.[2] His results from *in vitro* antibiotic studies suggested that aureomycin was effective against a multitude of organisms, some of which were pathogens of the urinary tract. By 1949, when our study began, little clinical evidence had been reported to corroborate these laboratory implications.

Purpose of Study

It was our desire to determine the sensitivity of a large variety of bacteria obtained from cultures of infected urine of patients, to treat as many of these patients as possible with aureomycin for a fixed time and to observe the clinical and bacteriologic results.

Methods and Materials

Examinations of the urine of 174 patients were made prior to treatment of infections of the urinary tract with aureomycin. A total of 187 separate cultures and sensitivity tests were performed before treatment, the larger number of cultures representing mixed infections in some of the patients. Of the 174 patients only fifty were carefully enough controlled to be included in this study as far as clinical response was concerned. Patients excluded were those who could not take oral medication, those who were treated with another antibiotic in conjunction with aureomycin and those who were dismissed without a follow-up culture or Gram stain, or both.

The urine was collected in sterile containers and transported immediately to the Section of Bacteriology. On receipt in the laboratory approximately 0.1 cc. of the urine was placed on the surface of an eosin-methylene blue plate and a blood-agar plate and incubated over night. In some instances the organisms obtained by culture were held over until aureomycin therapy had been completed in order that their susceptibility to aureomycin could be compared with that of organisms isolated after completion of therapy. Tests of sensitivity to aureomycin *in vitro* were carried out on freshly prepared blood-agar plates in which aureomycin was incorporated. A uniform inoculum of an eight-hour culture was spread evenly over the surface of a series of blood-agar plates containing twofold dilutions of aureomycin. The plates were incubated at 37° C. for seventeen hours and the sensitivity recorded was the concentration of aureomycin which would inhibit completely the growth of the organisms.

The degree of sensitivity to aureomycin was graded according to the amount of the drug necessary to inhibit growth, in the following manner: highly sensitive—growth inhibited by 1.56 micrograms or less per cubic centimeter; moderately sensitive—growth inhibited by 3.12 micrograms per cubic centimeter, and resistant—growth not inhibited by 6.25 micrograms per cubic centimeter or more. In some instances the sensitivity of the organisms was checked against concentrations of aureomycin as high as 500 micrograms per cubic centimeter.

Dosage of aureomycin, both total and daily, varied with the organism cultured from the urine,

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The aureomycin used in this study was supplied by Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

The laboratory work was carried out by the Section of Bacteriology.

Dr. Longley is a Fellow in Urology, Mayo Foundation, University of Minnesota and Dr. Thompson is with the Section of Urology, Mayo Clinic, Rochester, Minnesota.

TABLE I. ORGANISMS ISOLATED IN 187 CULTURES FROM 174 PATIENTS WITH INFECTION OF THE URINARY TRACT AND THE SENSITIVITY OF THESE ORGANISMS TO AUREOMYCIN IN VITRO

Organism	Total Cultures	Highly Sensitive	Moderately Sensitive	Resistant Number	Resistant Per cent
Escherichia coli	61	11	28	22	36
Aerobacter aerogenes	48	13	22	13	27
Proteus vulgaris	31	0	1	30	97
Micrococcus pyogenes	18	15	0	3	17
Pseudomonas aeruginosa	16	0	1	15	94
Streptococcus faecalis	12	11	1	0	0
Streptococcus viridans	1	0	1	0	0
Total	187	50	54	83	

TABLE II. ORGANISMS ISOLATED IN FIFTY-FOUR CULTURES FROM FIFTY PATIENTS WITH INFECTIONS OF THE URINARY TRACT AND THE PROPORTION NOT CONTROLLED BY TREATMENT WITH AUREOMYCIN

Organism	Total cultures	Not controlled bacteriologically Number	Not controlled bacteriologically Per cent
Aerobacter aerogenes	23	1	4
Escherichia coli	16	3*	19
Streptococcus faecalis	5	0	0
Proteus vulgaris	3	2	67
Pseudomonas aeruginosa	4	3	75
Micrococcus pyogenes	3	1	33
Total	54	10	19

*Two of these were sensitive and 1 was resistant to aureomycin *in vitro*.

its sensitivity, and the size of the patient; it was usually 1 gm. a day for four days. At first, post-therapy cultures were taken forty-eight hours after the administration of aureomycin had been stopped, in accordance with previous reports[1] that the lapse of approximately this much time is necessary to clear the urine of aureomycin. Later we discovered that in most instances the concentration of aureomycin in the urine had little effect if the cultures were made shortly after use of the drug was discontinued; dilution and instability of the drug no doubt contributed to these findings in cultures. Sensitivity was determined after treatment in a number of instances in which cultures were positive and the organism tested against higher concentrations of aureomycin.

Results and Comment

The variety of organisms isolated in our study and their sensitivity to aureomycin are indicated in Table I. Escherichia coli was the most common organism (33 per cent of the cases) and 64 per cent of these were sensitive *in vitro*. Aerobacter aerogenes was the second most common one (26 per cent of the cases) and 73 per cent were sensitive *in vitro*. Proteus vulgaris was found in 17 per cent of the series and all but one was considered resistant (97 per cent were resistant). Micrococcus pyogenes formed 10 per cent of the 187 cultures and 83 per cent were considered sensitive. Pseudomonas aeruginosa was present in 9 per cent of the cultures and all but one were resistant (94 per cent were resistant). Streptococcus faecalis was cultured eleven times (6 per cent of the cases) and all were sensitive. Streptococcus viridans was found on one occasion and it was sensitive.

Proteus and Pseudomonas were resistant to aureomycin at high concentrations *in vitro*. In two cases Proteus was inhibited by 500 micrograms per cubic centimeter; Pseudomonas was inhibited by 100 micrograms per cubic centimeter in two cases and by 500 micrograms per cubic centimeter in one case.

From Table I it may be seen that 104, or 56 per cent, of the 187 organisms were sensitive to aureomycin *in vitro* and, if the Pseudomonas and Proteus groups are excluded, 73 per cent of the other bacteria were sensitive to this antibiotic *in vitro*.

Table II summarizes the clinical results. Escherichia coli and Aerobacter aerogenes occurred frequently enough to give significant results. In these groups treatment failed in 19 per cent and 4 per cent, respectively, as compared to *in vitro* resistance in 36 per cent and 27 per cent, respectively. As is indicated by comparison of Table I and Table II, *in vitro* tests in this series were somewhat misleading as to therapeutic results to be expected. The difference may mean that our standards for resistance to these organisms may have been too low when one considers the high urinary levels of aureomycin attainable clinically[3] and that a certain percentage of the organisms that did respond but were "resistant" *in vitro* may have been inhibited in the next few stronger dilutions of aureomycin in the laboratory sensitivity tests.

In some of the cases of urinary infection the original organism was removed by treatment with aureomycin but another organism, usually Proteus or Pseudomonas, grew out in the culture when use of the drug was stopped. These were cases

(Continued on Page 974)

THE HYPERTENSION PROBLEM

Recent Advances in Clinical Description and Management with Drugs

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ESSENTIAL hypertension has been recognized as a disease entity for over sixty years. During this period progress toward effective treatment has been painfully slow and the course of the disorder can only rarely be halted. It seems reasonable to believe that this situation will not always obtain and the profession should not fall by the wayside into the morass of therapeutic nihilism. On the other hand, it is high time a measure of reason was introduced into our outlook concerning the course of the untreated disease. In any case, progress toward an adequate description of the natural history of essential hypertension has, in recent years, been more impressive than progress in the treatment of the disorder.

We can, therefore, begin to cut this monster down to size. Since no effective depressor measure is, or is likely to become, free from inconvenience and possibly danger to the patient, it is clearly wrong to employ such agents unnecessarily. Likewise, it is fatuous to claim great success for therapeutic agents when they have been tested on patients who would do well even if left untreated. It all comes down, in the last analysis, to two questions: (1) What patients with essential hypertension should we treat? (2) What therapeutic method should we use in those patients who require treatment? In the latter connection, this presentation will deal only with some of the newer drugs, in view of the nature of our own experience and the limited time available.

Normal and Abnormal Blood Pressure

Every physician knows that many, and perhaps most, hypertensive patients go for many years without developing any of the dread sequelae of prolonged hypertension such as heart failure, cerebrovascular accidents, or uremia. He also knows that many of them are able to continue at their daily work, particularly if they can be persuaded to maintain a firm and unruffled attitude toward their disease. This is not to say that cardiac failure and cerebrovascular disease due to essential hypertension are particularly uncommon, but, relative to the number of patients we usually consider to be hypertensive, they are indeed infrequent or at least surprisingly slow to make their appearance.

TABLE I. INCIDENCE IN PER CENT OF HYPERTENSION BY SEX AND AGE.
Condensed from Master, Dublin, and Marks (1).

Sex—Age		140/90	150/90	150/100	180/105
Men	16-19	13.1	9.2	4.0	0.5
	35-39	29.1	23.3	9.5	1.5
	60-64	60.3	48.5	36.9	8.2
Women	16-19	5.3	4.0	1.4	0.2
	35-39	20.8	16.4	6.1	1.1
	60-64	64.4	51.8	40.8	13.1

One may well wonder, therefore, about our criteria for differentiating between normal and high levels of blood pressure. This question has recently been subjected to close scrutiny by Master and colleagues[4] who base their views on physical findings in about 75,000 adults. Consideration of their work shows that there can be no rigid definition of the normal blood pressure. They confirm the impression that although people in their teens and twenties normally have blood pressures that are well below the usually accepted 140/90, the levels in otherwise normal middle-aged and elderly people often exceed this value. If we try to define the incidence of so-called hypertension in people who are otherwise healthy, we must, of course, accept some rather arbitrary blood pressure level as separating the normal from the abnormal. Again using Master's data, we see clearly that the incidence depends entirely on our definition (Table I). If 140/90 is accepted as a dividing line, as custom often requires, relatively large numbers of people, especially in the older age groups, must be classified as abnormal. If we go to the other extreme and set 180/105 as the dividing line, the number so classified is much smaller. It seems likely, in the older groups at

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These studies are being supported in part by a grant from the Minnesota Heart Association.

Minnesota Medical Foundation lecture delivered before the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 28, 1952.

least, that the 180/105 dividing line is more realistic than the 140/90 level. The blood pressure alone, therefore, turns out to be a rather unsatisfactory means of separating healthy from unhealthy individuals. Standard statistical assumptions show that a certain number of normal persons have blood pressure levels that are well above or below the average figure for the group. On this basis, Master and colleagues have calculated lower and upper limits of normal for persons of various ages. Above and below these limits are borderline areas and blood pressure readings that fall within them may or may not indicate the presence of disease. There is no way of knowing how accurate these limits really are, but the data strongly suggest that many individuals are wrongly classified as abnormal on the basis of the blood pressure alone. The work also shows how very badly we need some measurement *other than* the blood pressure to help us separate those individuals who usually show somewhat elevated blood pressures but who have no actual disease from those who, with comparable blood pressures, actually have early essential hypertension. In any case, a single abnormal measurement of the blood pressure is rarely sufficient evidence on which to base the diagnosis of essential hypertension. In a study conducted by Dr. Ancel Keys and co-workers at the University of Minnesota, 283 middle-aged men have been carefully examined every year for five years. Thirty-five and seven-tenths per cent of the group showed systolic blood pressure readings of 140 mm. Hg or above, and/or diastolic readings of 90 mm. or over *at least once* during the five years. But only 10 per cent of the group consistently showed readings at or above this level. Should the 25 per cent who do not *consistently* show levels of 140 systolic and/or 90 diastolic be called hypertensive and should treatment be instituted? In the absence of other evidence of disease, the burden of proof is surely on the man who answers these questions in the affirmative. Even if, as the study proceeds, they do indeed prove to have essential hypertension, the question of treatment is still a moot one.

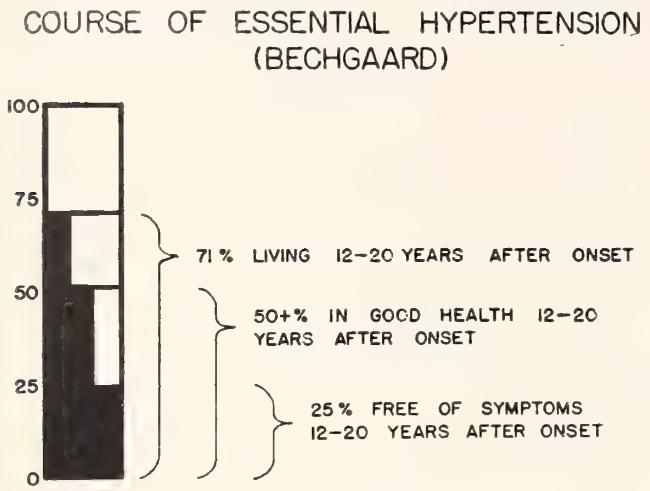


Fig. 1. The course of essential hypertension in 1,002 patients followed by Bechgaard[1] for seven to eleven years.

Natural History of Untreated Essential Hypertension

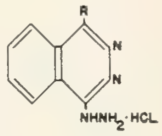
It is difficult to be certain that any method of treating essential hypertension actually alters its course. Until recently, documentary evidence to show the course of the untreated disease has been lacking. Without this knowledge, it has been impossible to gauge the long-term effect of treatment of any kind. The information now at hand puts us on firmer ground. Two large studies, one by Bechgaard,[1] and the other by Frant and Groen,[2] are in good agreement. They show that essential hypertension, *considered generally,* is indeed a benign disease. We should note, however, that no single patient is really described by an average figure and that each needs careful individual evaluation, preferably over considerable periods of time. Bechgaard's large study shows that about 71 per cent of patients with essential hypertension survive at least twelve to twenty years after onset and that over half of them remain in good health for such a period (Fig. 1). By good health he means that over half of his patients continued at productive employment or were able to lead relatively normal lives. Only 25 per cent of the group, however, remained asymptomatic for this length of time and the fact deserves comment. Symptoms in essential hypertension may or may not be directly due to the fact that the blood pressure is elevated. Some of them are definite enough. Dyspnea on exertion and complaints relative to cerebrovascular accidents—actually symptoms of sequelae of hypertension and not of elevated blood pressure itself—are unmistakable and usually can easily be separated from subjective complaints. But what of the headache, nervousness, and fatigibility that are so frequently non-specific symptoms, possibly of iatrogenic disease and may well represent anxiety symptoms rather than direct symptoms of hypertension itself? It we had some way of distinguishing clearly between organic and nonorganic symptoms in patients with essential hypertension, it seems safe to assume that far more than 25 per cent of Bechgaard's cases would have been put in the asymptomatic category.

These generalizations apply to essential hypertension *en masse.* They are well supported by reliable data but leave out all consideration of age-sex factors. For this reason, they are somewhat misleading. Looked at more analytically, the data show clearly that established essential hypertension is a serious disease in young people and especially in young men, not so serious in middle-aged people of both sexes, and a mere annoyance in the elderly. More specifically, according to Bechgaard, a man who develops definite essential hypertension between the ages of thirty and forty-nine is eight times more likely to die within ten years of onset than is a comparable normotensive man over the same period of time. Women, in contrast, who develop the disease between thirty and forty-nine are only 1.4 times more likely to die during such a period of time than are comparable normotensive women. Men and women who develop the disease between the ages of fifty and sixty-nine have an excellent chance of living out a normal life span and attempts to treat the disease in this age group, except in unusual cases, are often ill-advised. These data suggest that overtreatment may have been the rule rather than the exception in the management of many cases of essential hypertension but they underscore the urgent need for effective therapy of the disorder, particularly when it occurs in young people and especially in young men.

Treatment of Essential Hypertension with Drugs

A clinically feasible method of controlling essential hypertension with drugs is not available. There are, however, many drugs which cause lowering of the blood pressure, almost all of which have, at one time or another, been recommended in the treatment of the disorder. The profession has quite rightly developed a rather critical attitude toward new depressor agents since so many have come and gone without contributing much to the year-to-year management of hypertensive patients. Depressor drugs do not, of course, strike at the cause of essential hypertension but, theoretically at least, if a prolonged depressor effect could be achieved, many of the worst sequelae of the disorder would be avoided or postponed. Toward this goal three groups of drugs are currently under investigation: (1) adrenergic blocking agents, (2) drugs acting centrally or centrally and peripherally, and (3) ganglionic blocking agents.

L-HYDRAZINOPHTHALAZINE



SITE OF ACTION UNCERTAIN

? CENTRAL

? PERIPHERAL

MILDLY DEPRESSOR IN HUMAN BEINGS

PRODUCES RENAL HYPEREMIA IN MAN

RELATIVELY NON-TOXIC

TOLERANCE DEVELOPS AT VARIABLE RATE

Fig. 2. The chemical structure and pharmacologic characteristics of 1-hydrazino-phthalazine.

Adrenergic blocking agents, also known as sympatholytic drugs, are thought to abolish or modify arteriolar constriction by direct action on the vascular wall or on the nerve endings in it. Several such drugs, including dibenamine and dibenzyline (688-A) have been tried in the treatment of essential hypertension with as yet inconclusive results. We have had no experience with them.

L-hydrazino-phthalazine, a drug thought to act centrally and known to produce renal hyperemia in the human being, has recently been introduced in the management of essential hypertension (Fig. 2). It has been found by Schroeder[6] to exert a mild depressor effect in patients with benign essential hypertension and a more marked depressor effect in patients with the malignant phase of the disorder. The drug appears to be relatively non-toxic and its effect is said to be enhanced by previous lumbodorsal sympathectomy. Tolerance to the drug probably develops over a variable period of time and it has not yet been shown to be effective in controlling essential hypertension over long periods. In our own hands, the drug has produced a moderate decrease of blood pressure in patients with severe essential hypertension but it has not been possible to maintain the effect more than a few weeks. Schroeder[6] reports probable benefit extending over many months. At best, however, the drug temporarily moderates the course of essential hypertension and, as pointed out by the above author, rarely restores the blood pressure to normal levels for any length of time. The drug, although commercially available, has not had adequate clinical testing and its place in the management of essential hypertension is still uncertain.

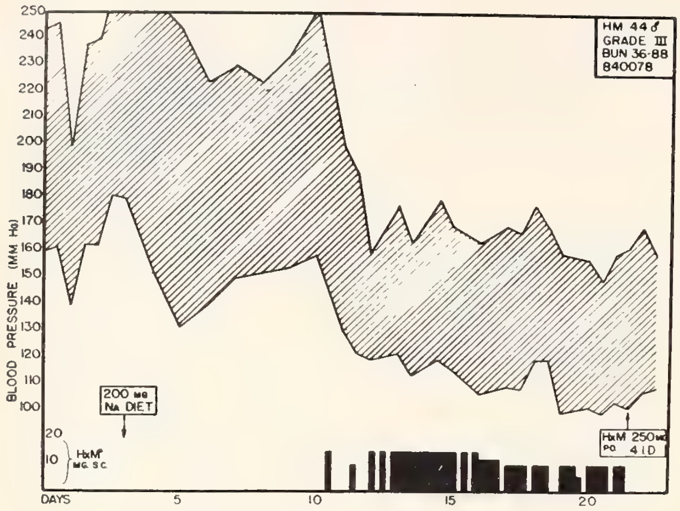


Fig. 3. Depressor effect of parenteral hexamethonium in a patient with severe essential hypertension.

Ganglionic blocking agents have recently attracted considerable attention. The first drug of this type to be investigated (tetraethylammonium) proved to have a very brief depressor action and for this reason was impractical as a means of controlling essential hypertension. More recently, longer acting drugs of this type have become available in the forms of penta- and hexamethonium salts.[5] When administered parenterally, the hexamethonium form produces a moderate to extreme depressor effect lasting up to about two hours. Although caution must attend its use, it is relatively non-toxic and can be used over long periods of time. Unfortunately, tolerance to the depressor effect of the drug is rapidly developed.

Studies on the effect of parenteral hexamethonium have been in progress at the University Hospital for about a year. Patients with severe, symptomatic essential hypertension have been used as test subjects. An initial 15 mg. dose of the drug is given intramuscularly and its effect on the supine blood pressure is carefully followed. If there is no effect, doses are increased by 15 mg. at three hourly intervals until a satisfactory response is obtained. This dose is then continued at three to six-hour intervals. The largest single dose determined in this way was 100 mg. After several days, it is usually necessary to increase the dose still further in order to maintain a satisfactory depressor effect and after seven to ten days it becomes impossible, in most cases, to maintain a satisfactory depressor effect without, at the same time, producing marked side-effects.

In one group of twelve severely hypertensive patients treated in this manner, definite lowering of the blood pressure was maintained for an average of 8.4 days. The relief of symptoms, especially of headache, was striking. The average fall in systolic pressure over the period was 48 mm.Hg. and was 27 mm. in the diastolic. Only three of the patients, however, showed more than momentary falls to normal (below 140/90) during the period of treatment. The fall in pressure in one patient is shown graphically in Figure 3.

Attempts to control the blood pressure in severely hypertensive patients over longer periods of time with parenteral hexamethonium have been disappointing. Three of the twelve were taught to give their own injections two or three times daily and were followed at weekly intervals in the clinic for two to three months. Although the remission in symptoms continued, the blood pressure levels returned to, or nearly to, the pretreatment levels. It was not possible, for various reasons to continue the parenteral treatment after discharge from the hospital in the remaining nine patients. Seven patients, however, were treated while in the hospital with parenteral (intramuscular) hexamethonium and then were treated with an oral form of the drug. As with the parenteral drug, the dosage of the oral preparation varies a great deal from patient to patient. It runs about ten times the parenteral dose and, in some patients, we have used up to 3 grams of it a day. The average control blood pressure in the group was 211/132. Treatment with parenteral hexamethonium reduced the average to 170/111. Subsequently, treatment with oral hexamethonium for two to ten weeks resulted in an average blood pressure reading of 189/114 for the group. We infer from our experience that the parenteral form of the drug is more effective and more predictable than the oral form but that the latter is not totally devoid of depressor effect (Fig. 4).

It should be noted that the above figures are averages that cover the entire period of a given type of treatment. This method of expressing results conceals the fact that most hypertensive patients show a maximum depressor response to hexamethonium soon after treatment is begun. Subsequently, although doses are steadily increased, blood pressure levels tend to rise presumably owing to the development of tolerance to the drug. To describe results in terms of *maximum* depressor response, however, is clearly misleading although it makes the results seem much more striking; day-to-day therapeutic results are of little significance in the lives of patients suffering from a disorder that characteristically lasts for years.

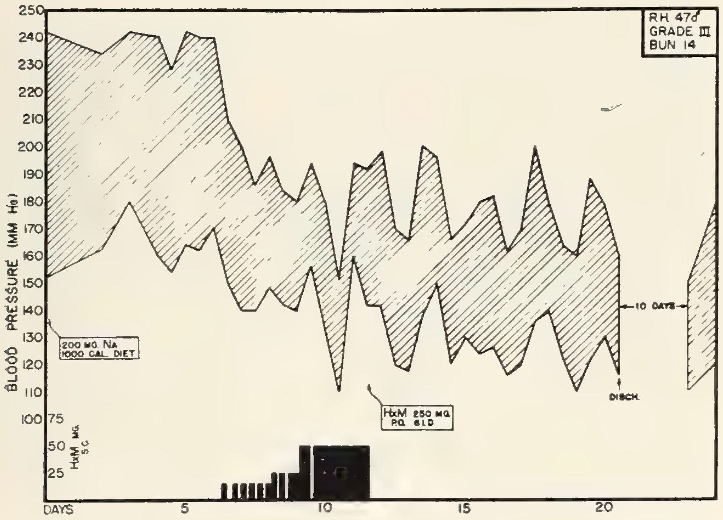


Fig. 4. Effect of parenteral, followed by oral, hexamethonium in a patient with severe essential hypertension.

In six patients with malignant hypertension, as evidenced by grade IV eyegrounds, there was moderate to marked decline in blood pressure after institution of treatment with parenteral hexamethonium. In all six, papilledema disappeared and in several there was recognizable diminution in retinal vascular constriction. As in the non-malignant group, relief of symptoms was striking. Temporary benefit was thus obtained in all six patients but the evidence does not yet suggest that use of hexamethonium significantly altered the course of the disease. One young man, with very fulminating malignant hypertension, showed a very satisfactory depressor response to the drug but the BUN continued to rise and the patient expired three days after treatment was begun (Fig. 5). Another patient in the group improved temporarily but died after adrenalectomy was performed. The remaining four patients are still living and show grade III eyegrounds. All still have marked hypertension but have temporarily weathered a malignant crisis, possibly owing to treatment with hexamethonium. Other types of hypertensive crises have been treated with the drug with some success. One patient, an eight-year-old boy, probably suffering from some type of renal hypertension, developed hypertensive encephalopathy with convulsions. Hexamethonium promptly lowered the blood pressure and terminated the convulsions but, probably because of the development of tolerance, the pressure rose again during the next few days. Subsequently, various combinations of drugs and diets brought the patient under fair control but maintenance has been difficult and he is now about where he started. It seems to us that, as matters now stand, the hexamethonium compounds are undeniably useful in the management of hypertensive crises but that some modification of them will have to be made before they can be adequately evaluated in the long-term treatment of essential hypertension.

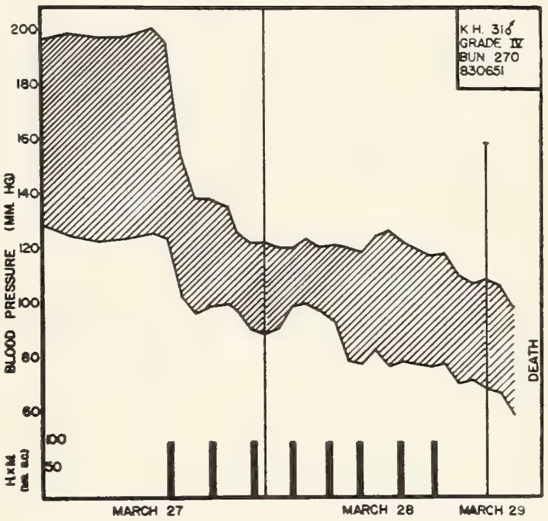


Fig. 5. Depressor effect of parenteral hexamethonium in a patient with malignant hypertension and progressive uremia.

The use of 1-hydrazino-phthalazine in combination with hexamethonium has recently received considerable attention.[3] The most valid reason for using hexamethonium and 1-hydrazino-phthalazine in combination is that such use delays the development of tolerance to their depressor effects. By giving the drugs in alternate doses, it is possible to maintain a fairly constant effect without giving either drug so frequently that rapid tolerance develops. Our own experience with the combination is too small to permit firm conclusions. The combination, when applied to five patients in the hospital, had a depressor effect that was comparable to that observed when hexamethonium alone was used. The combination has failed, in our hands, to maintain a significant depressor effect after patients were discharged from the hospital to be followed in the clinic. We have not attempted to instruct the patient or a member of his family to take the blood pressure and to adjust the dose of the drug accordingly. The technique seems to us to be ill-advised in view of the probable unreliability of the sphygomamometric readings. In addition, there is good reason to question the wisdom of directing the patient's attention so constantly to the level of his blood pressure. In any case, there is no satisfactory proof that hexamethonium alone or in combination with 1-hydrazino-phthalazine can effectively control essential hypertension on a year-to-year basis.

It is, therefore, still out of the question to speak of curing essential hypertension by means of drugs and the prospect for a convenient, easy way of controlling it by the use of drugs over long periods of time is not particularly bright. On the other hand, it is not unreasonable to expect that the newer depressor drugs can be improved, that more effective dosage schedules can be worked out, and that the development of tolerance to the effects of the drugs can be overcome to some extent. With the prospect of having several safe and effective depressor drugs at hand, and with the knowledge that depressor dietary measures can be safely applied for limited periods of time, effective long-term treatment of the disease may well become a reality. We may, in this way, be able to retard the development of the cardiovascular, and possibly the renal sequelae, for very considerable periods of time. But the basic disorder underlying essential hypertension, whether it be physiologic, biochemical, psychiatric, or all three, still escapes us.

In conclusion, we can answer the two questions posed initially only partly:

1. Attempts to treat essential hypertension by means of drugs should be limited to patients with severe, or rapidly progressing, forms of the disorder. An aggressive therapeutic attitude, however, should be adopted in dealing with well-established essential hypertension in the younger age groups and especially in young men.

2. Safe and practical methods of controlling hypertensive crises by the use of drugs are available. The long-term management of essential hypertension with drugs is not yet established as therapeutic fact.

Acknowledgments

Supplies of hexamethonium dibromide (Vegolysin) were at first provided by courtesy of Dr. R. D. H. Maxwell of May and Baker, Ltd., Glasgow, Scotland. Subsequently, oral and parenteral (Bistrium) forms of the drug were supplied by Mr. L. D. Foster and Dr. A. D. Console of E. R. Squibb and Sons, New York. A continuing and generous supply of hexamethonium bromide for oral use is being provided by Dr. G. E. Farrar of Wyeth, Inc., Philadelphia.

Bibliography

1. Bechgaard, P.: Arterial hypertension; follow-up study of one thousand hypertonics. Acta Med. Scandinavica Suppl., 172:3-358, 1946.
2. Frant, R., and Groen, J.: Prognosis of vascular hypertension. A nine-year follow-up study of four hundred and eighteen cases. Arch. Int. Med., 85: 727-750, 1950.
3. Freis, E., Finnerty, F. A., Schnaper, H. W., and Johnson, R. L.: The treatment of hypertension with hexamethonium. Circulation, 5:20-27, 1952.
4. Master, A. M., Dublin, L. I., and Marks, H. H.: The normal blood pressure range and its clinical implications. J.A.M.A., 143:1464-1470, 1950.
5. Paton, W., and Zaimis, E.: Clinical potentialities of certain bisquartenary salts causing neuromuscular and ganglionic block. Nature, 162:810, 1948.
6. Schroeder, H.: The effect of 1-hydrazino-phthalazine in hypertension. Circulation, 5:28-37, 1952.

"ERADICATION" URGED

Representatives of all organizations interested in brucellosis in fourteen states met in Saint Paul in July, 1952, and launched a unified and determined campaign for eradicating this disease in cattle. The point was stressed throughout the discussions that only by eradicating brucellosis in animals can it be kept from infecting human beings.

Formation of statewide brucellosis committees in each state was recommended. It was agreed that all available means should be used to wipe out brucellosis—ring-testing of milk, blood-testing of animals in herds shown by the milk test to be suspect, calfhood vaccination where indicated, identification and ultimate elimination of reactors, quarantine of infected herds, and restrictions on the movement and sale of infected or untested animals.

The opinion was voiced at the meetings that Minnesota is outstanding in the degree of co-operation existing among various agencies working for the eradication of brucellosis. Other states represented at the conference were Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Participating in the discussions were representatives of dairy, beef cattle, and swine raising groups; agricultural and farm extension organizations; veterinarians, animal disease control groups, health and medical groups, and the agricultural press, from both state and national levels.

Ralph L. West, D.V.M., secretary and executive officer of the Minnesota State Live Stock Sanitary Board, served as chairman. He was empowered to call the group together again when the need arises. A full report of the proceedings is being prepared and will be sent to each of the participants.—*Minnesota's Health.*

NASAL HEMORRHAGE

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A VERY frequent condition which the general practitioner and specialist alike are repeatedly called upon to treat is that of nasal hemorrhage. Often occurring at night, it probably takes care of itself more times than we realize, but those cases which the physician sees usually require some kind of treatment. As we will see later, it is coming to be more and more a geriatric problem.

A review of nasal anatomy, while seemingly elementary, is worthwhile in considering the treatment in severe and resistant cases.[1,4] The numerous venous plexuses and arterial anastomoses present in the nasal region have been demonstrated by Batson in his dissections. The arteries of the nose come from the branches of the internal and external carotid. The anterior ethmoidal artery is a branch of the ophthalmic artery which supplies the area of the anterior-superior portion of the nasal cavity. From the external carotid, the septal branch of the labial artery, which is a twig from the external maxillary, supplies the extreme anterior end of the nasal septum. The alveolar branches of the internal maxillary supply the mucosa of the maxillary sinus, while a pharyngeal branch, also from the internal maxillary, supplies the mucosa of the sphenoids. The descending palatine branch of the internal maxillary passes through the palate into the incisive foramen and anastomoses with the sphenopalatine, which is the most important branch of the internal maxillary. The sphenopalatine enters the nose through the sphenopalatine foramen near the posterior end of the middle turbinate. The medial branch enters the septum and the lateral branch the turbinates, maxillary and ethmoid sinuses. The veins are very numerous and follow the arterial blood supply closely.

There are many causes of nasal bleeding. Trauma, self-induced, accidental or surgical, is a frequent cause. Surgical trauma occurs after intranasal operations or adenoidectomy. Arteriosclerotic vessels in older persons commonly bleed at night spontaneously and often require medical attention. Hallberg states that over 40 per cent of patients requiring hospitalization for epistaxis have hypertension, arteriosclerosis or both. They have an irritating tendency at times to stop before the physician arrives or soon afterwards, only to begin again the next night, and soon your patient is exhausted and your patience likewise.

Blood dyscrasias and neoplasms may cause spontaneous bleeding requiring surgical intervention. Also seen are hemorrhages from acute infectious diseases of the nose, foreign bodies in the nose, violent exertion, high altitude, septal ulcers, chemical intoxication such as mercurial and phosphorous poisoning, angiomas or malignant growths of the nose, vicarious menstruation, and many contitutional diseases such as hemophilia, purpura, leukemia, syphilis, tuberculosis, certain iron-deficiency anemias, vitamin C deficiency and hypertension.

The site of the bleeding naturally determines the ease of the treatment. By far the most common source is the anterior inferior portion of the septum known as Kiesselbach's area. There is a rich venous plexus here that bleeds easily from trauma, nose picking or dislodging crusts. Farther back on the septum bleeding may occur also but, if visible, still does not present too difficult a problem. Bleeding from trauma may be so generalized and profuse and the parts so edematous as to make actual control by direct vision impossible. A deviated septum may also cause difficulty in exactly locating the hemorrhage and may even require submucous resection.

Bleeding in the posterior nasal area is usually impossible to visualize and presents a more difficult problem. The blood usually drains into the pharynx and can often be seen dripping rapidly off the tip of the uvula. A long dependent clot may hang down in the hypopharynx, and no bleeding be seen at all. On removal of the clot, bleeding will often begin again and be seen coming down from above. Sometimes the first evidence of renewed bleeding is pallor, sweating, cold skin, rapid pulse and sudden emesis of blood.

Control of nasal hemorrhage can be very simple or extremely complicated, depending on location and severity. Methods and materials used to control it are almost numberless and run from simple pressure to packing the nasal cavity with various

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Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

agents soaked in various solutions. Often used are vasoconstrictors, chemical agents such as silver nitrate, phenol, trichloracetic acid, chromic acid, Monsel's solution, tannic acid, salt pork, peroxide, vinegar, rubber balloons, Simpson splints, and so on, endlessly. More recently hemostatics of oxidized cellulose gauze or cotton have been found to be of considerable help.

Application of these methods varies with the case. Hemorrhage in children or adults with simple bleeding from Kiesselbach's area, if treated at home, can be controlled usually by pressure from a plug of either plain gauze or cotton in the nares. An easy method of control without using a pack is touching the bleeding point, if visible, with a chromic acid bead which one can easily make in the home. Similarly a local application of a mixture of equal parts of cocaine, phenol and menthol (Bonain's solution, used for anesthetizing the tympanic membrane) gives another use for this old remedy. In the office one can under good illumination use the actual cautery on these anterior bleeders. Injection of procaine and adrenalin solution or sclerosing solutions can help to stem the bleeding long enough to see what is going on and to better apply the actual cautery.

For inaccessible bleeding posteriorly which does not yield quickly to simple methods, it is better to put in a post-nasal tampon of adequate size and then pack the nares with vaseline gauze. Nasal packing should start at the most superior-posterior point, working forward and downward to the floor of the nose. In this type of case, bleeding will usually recur again and again and give the physician very litle rest if the packing is delayed in the hope that it may be avoided. Nothing is more exasperating than to be called back in the middle of the night after apparently successfully stopping the bleeding several hours previously.

If an absorbable gauze packing is used, it should not be packed tightly because of the danger of producing a pressure necrosis of nasal mucosa. A post-nasal pack should be removed in forty-eight hours, according to many authorities, to avoid otitis media. Spar and Hallberg[5] reported seeing blood in the middle ear in eight cases, and reported a case of osteomyelitis of the sphenoid with meningitis and cranial nerve palsy as another complication. The odor of putrefaction exuding from a patient with this packing in place very long is not pleasant, however, and can be partially prevented by impregnating the pack with antibiotic powders or ointments to keep down bacterial growth. One should also give penicillin parenterally.

After removal of the packing in the nasopharynx, bleeding may seem to be controlled, only to have it start up again either spontaneously or induced by coughing, sneezing, or straining. Patients in shock brought on by loss of blood should be treated supportively along with the attempt to control hemorrhage.

If in spite of all these measures one still fails to control the hemorrhage by conventional methods, ligation of major vessels becomes necessary. The decision to perform such a procedure may be reached in a few days or a week, depending on the condition of the patient. When one sees the bleeding becoming intractable, it is better to go ahead and ligate while the patient is in fairly good condition. The nervous agitation of the patient, his family and friends and the physician's fatigue make it almost mandatory. Dashing to the hospital five or six times in twenty-four hours will weigh heavily on one's nerves. There is no point in waiting until the patient becomes so weak that he is in a state of deep shock. Hallberg[2] mentions that of 106 patients admitted to the Mayo Clinic from 1930 to 1947 for severe epistaxis, there were eleven that required ligation of the external carotid artery. One-half were fifty-five years of age or more, of which 40 per cent had hypertension, arteriosclerosis, or both.

The previously mentioned anatomical blood supply will govern the choice of vessel for ligation. Obviously most bleeding will yield to external carotid ligation, but if the anterior or posterior ethmoidals are involved, the internal carotid or even the common must be tied off. The exact surgical technique will not be described here. It can be obtained in any standard text for those who are attempting it the first time. Hirsch,[3] Sewall and others had several cases where the internal maxillary artery itself was tied off by going through the antrum as in a Caldwell-Luc operation and continuing on through the posterior wall of the antrum where the internal maxillary artery is located in the soft tissue of the pterygopalatine fossa. Bleeding stopped immediately on ligation. Here the difficulty is that it is primarily a procedure for the rhinologist and the work must be done through a very small opening with special instruments.

Two cases which required ligation of the external carotid artery when all else had failed will be mentioned.

The first is that of A. P., aged thirty-five, a fireman by occupation, who was first seen on January 29, 1938. He had been cranking his car violently one cold evening when bleeding began spontaneously. He was sent to a hospital and a post-nasal pack inserted. Bleeding still took place through the pack, and it was removed and reinserted several times in the next two days. It would hold for a while and the pressure would tend to increase and the blood would filter through the pack. The condition of the patient became critical with the hemoglobin down to 55 per cent, the red cell count 3,000,000. The first transfusion was given January 31. His condition improved, but on the evening of February 1 about 1,000 cc. of blood were lost in a short time. At this time, on looking in the nasopharynx a spurter was seen high up in this area but nothing could be done to control it. It was decided after consultation to ligate the left external carotid artery. This was done February 3 with immediate cessation of bleeding. The patient rapidly improved and was discharged from the hospital February 10. There were no sequelae to the operation and no further bleeding occurred. In January, 1951, I performed a submucous resection of the nasal septum for difficult breathing and no untoward bleeding was encountered.

The second case was that of a stockyards worker who was injured by a cow on March 20, 1947. He had been bleeding for seven days when he was first seen. He was first treated by packing and post-nasal packing inasmuch as no bleeding point was seen. The patient continued to bleed and was hospitalized March 31.

In spite of constant packing and repacking along with three transfusions there was no let-up in hemorrhage. On April 3 the blood picture was: hemoglobin 60 per cent, red cell count 3,340,000. A decision was made to ligate the left external carotid which was done April 3. The same results took place as in the preceding case and convalescence was uneventful.

Summary and Conclusions

Nasal hemorrhage can be a very simple condition or one that requires heroic efforts to prevent death. Individuals with serious protracted bleeding should be sent to a hospital and an immediate attempt made to control the loss of blood. While rarely necessary, intractable bleeding calls for ligation of major vessels as a life-saving measure.

References

1. Barnhill: Surgical Anatomy of the Head and Neck. Baltimore: William Wood and Co., 1937.
2. Hallberg, O. E.: Nosebleed and its management. Mississippi Doctor, 28:223-228 (Dec.) 1950.
3. Hirsch, Caeser: Ligation of the internal maxillary artery in patients with nasal hemorrhage. Arch. Otolaryngol., 24:589-593 (Nov.) 1936.
4. Jackson and Jackson: The Nose, Throat and Ear. Philadelphia: W. B. Saunders Co., 1945.
5. Spar, A. A., and Hallberg, O. E.: Severe epistaxis and its management. Ann. Otol., Rhin. & Laryng., 56:141-151 (Mar.) 1947.

SOME FUNCTIONAL DISORDERS OF THE SMALL INTESTINE OF CLINICAL IMPORTANCE

(Continued from Page 937)

12. Lepore, Michael J., Golden, Ross, and Flood, Charles A.: Oral banthine, an effective depressor of gastrointestinal motility. Gastroenterology, 17:551 (April) 1951.
13. Mann, P. J. F., Tennenbaum, M., and Quastil, J. H.: Acetylcholine metabolism in the central nervous system. The effect of potassium and other cations on acetylcholine liberation. Biochem. J., 33:822-835, 1939.
14. May, C. D., and McCreary, J. F.: The glucose tolerance test in celiac disease, significance of low blood sugar curves. J. Pediat., 17:143-154, 1940.
15. Nachmansohn, D., and Machado, A. L.: The formation of acetylcholine. A new enzyme "Choline Acetylase." J. Neurophysiol., 6:397-404, 1943.
16. Puestow, C. B.: Intestinal motility and postoperative distention; experimental and clinical studies. J.A.M.A., 120:903 (Nov. 21) 1942.
17. Randall, H. T., Habif, D. V., Lockwood, J. S., and Werner, S. C.: Potassium deficiency in surgical patients. Surgery, 26:341-363, 1949.
18. Randall, O. S.: Multiple myeloma complicated by intestinal obstruction due to amyloid infiltration of the small intestine. Am. J. Cancer, 19:838-846, 1933.
19. Smith, J. Ray: A technique for combined measurement of motility and electrical action potentials in the human intestine. Ann. Surg., 124:426 (Aug.) 1946.
20. Sollman, T.: A Manual of Pharmacology. 6th ed. Philadelphia: W. B. Saunders Co., 1948.
21. Teitelbaum, M. D., and Arenson, N.: Recurrent small intestinal intussusception in children. Am. J. Roentgenol., 63:80-88, 1950.
22. Watts, J. W., and Fulton, J. F.: Intussusception: the relation of the cerebral cortex to intestinal motility in the monkey. New England J. Med., 210:883-896, 1934.
23. Winter, Helen A., Hoff, H. E., and Dso, L.: Effect of potassium deficiency upon gastrointestinal motility. Federation Proc., 8:169, 1949.
24. Youmans, W. B.: Nervous and neurohumoral regulation of intestinal motility. New York: Interscience Publications, Inc., 1949.

BLOOD TRANSFUSIONS AND EXPANDERS OF BLOOD VOLUME

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THE present widespread dissemination of medical information to many individuals has led to considerable knowledge of the therapeutic value of blood, blood components and expanders of the blood volume, or so-called plasma substitutes.

Under average normal conditions, most communities have available either whole blood or one of the components of blood. However, these are not normal times, and the available supply of whole blood or one of the components might be inadequate if the demand were suddenly increased by a disaster or a series of disasters occurring locally or in the state as a whole. Minnesota is a valuable and vulnerable target. Consequently, it behooves the physicians in this state to be more than superficially familiar with the indications for the use of whole blood, the component parts of blood, and the various expanders of blood volume that are available commercially.

It will be of interest to all that the Committee on First Aid and Red Cross of the Minnesota State Medical Association passed a resolution on June 2, 1951, advocating the accumulation for use in event of civilian disaster of supplies of dextran, polyvinylpyrrolidone, gelatin or equivalent substances. This resolution was forwarded to Dr. A. J. Chesley, Executive Officer, Minnesota Department of Health, on June 23, 1951.[2]

Indications for Use of Blood and Blood Substitutes

For simplicity, the indications for the use of these therapeutic agents may be placed in one of five categories.

1. To Increase the Volume of Circulating Blood.—Reduction in the volume of circulating blood may result from operative or traumatic shock or from sudden massive hemorrhages of various types. The maintenance of proper blood volume depends to a large degree on an adequate reserve of tissue fluids. Patients who have lost much fluid, as in prolonged vomiting or diarrhea, pass more easily into a state of shock than do those whose fluid balance is adequate. Therefore, the correction of a state of dehydration, anemia or hypoprotinemia is of real import. The best treatment for shock is prevention. The reduction in blood volume itself, and not the loss of erythrocytes, is the prime cause of death in such cases.

In the active treatment of shock, immediate restoration of the blood volume is of great importance. In this way, the life of the patient may be saved. If the reduction in blood volume is left untreated, shock may become irreversible.

Most authors agree that in either prophylaxis or active treatment of shock, nothing seems to have as good and as lasting an effect as does the transfusion of whole blood. If more than a third of the blood volume is lost during an acute hemorrhage, death usually results unless the fluid volume is replaced quickly. When hemorrhage is slow, the loss of two thirds of the blood volume may be withstood because of peripheral vasoconstriction and the pouring of intracellular fluid into the vascular system.

It is the general consensus that administration of whole blood is preferred for the treatment of reduced blood volume caused by loss of blood. However, under conditions that might develop at any time, it may be that our supply of blood would be insufficient or unavailable. In such conditions, resort should be made to the use of one of the components of blood or one of the so-called blood volume expanders. Several of the latter agents are available, namely, acacia, gelatin, pectin, periston and dextran.

The use of acacia is decreasing. It may be found in the liver and other organs weeks or even years after administration, and it may produce allergic or anaphylactoid reactions in the recipient.

Solutions of gelatin usually provide some osmotic effect for twenty-four to forty-eight hours. Gelatin is nonantigenic and usually is not retained in the tissues. However, it depresses the concentration of serum albumin, increases the sedimentation rate of erythrocytes and produces pseudoagglutination of erythrocytes. In the pres-

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Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

From the section of Anesthesiology and Intravenous Therapy, Mayo Clinic, Rochester, Minnesota.

ence of renal damage, the use of gelatin might well be avoided.

Administration of solutions of pectin increases the sedimentation rate and reduces the number of platelets. About half of the material is deposited in the body and its ultimate fate is not well understood.

Periston is a mixture of 50 cc. of 20 per cent polyvinylpyrrolidone in 236 cc. of Ringer's solution. This makes a 3.5 per cent solution. This material also increases the sedimentation rate. From 20 to 50 per cent of the amount administered is reported to be excreted in the first three days, but the manner of its elimination is unknown.

Dextran is a biosynthetic polysaccharide obtained from the fermentation of sucrose. The molecular weight varies from 50,000 to 105,000. The preparations of higher molecular weight seem to be more efficacious. Most of this material disappears in twelve to fourteen hours. A tenth to a half is excreted in the urine but the fate of the rest is unknown. Allergic reactions have occurred following its administration. Various commercial brands appear to have similar value in the treatment of reduced blood volume resulting from a measured hemorrhage. However, there is one preparation that has been found to increase the blood volume to a greater extent than others, according to Bollman and associates.

Bollman, Knutson and Lundy summarized their investigations of the use of various expanders of blood volume in restoring diminished blood volume resulting from a measured acute hemorrhage as follows: (1) The agents, in order of decreasing effectiveness, are dextran, gelatin, acacia and periston. (2) Dextran, gelatin, acacia and periston are about as effective as plasma, washed erythrocytes and whole blood. (3) Solutions of saline are ineffective in restoring diminished blood volume resulting from measured acute hemorrhage. (4) A state of adequate hydration is necessary to obtain the maximal effect from volemic substances.

The value of blood plasma was proved during World War II. However, it did not supplant whole blood, because it was found that many patients did not receive maximal benefit from administration of plasma until whole blood also was given. The occasional (in certain regions, the frequent) appearance of hepatitis ninety to 120 days after the administration of plasma discourages its use. Irradiation of plasma does not eliminate entirely the possibility of the transference of the offending agent in the plasma. The use of blood plasma in the Mayo Clinic has decreased greatly because there must be an avidly desired, specific therapeutic effect that plasma alone can supply before its administration is requested. On the other hand, occasions arise when the calculated risk must be accepted and plasma administered.

The use of fluids in the treatment of lowered blood volume may be summarized as follows: (1) Whole citrated blood is most desirable in such conditions as shock. Its use may be supplemented by use of one of the plasma expanders, if it is desired. (2) These supplements are effective for a limited period after administration. No more than a temporary therapeutic effect should be expected from their use. (3) The plasma expanders do not transport oxygen and therefore these agents should not be administered in unlimited quantities. (4) These supplementary agents may be lifesaving if blood is not available immediately.

2. To Increase the Capacity of the Blood for Carrying Oxygen.—This indication exists in patients who have reduced values for hemoglobin and erythrocytes occurring in such conditions as acute and chronic anemias, severe hemorrhages, certain blood dyscrasias or defective formation of blood. Such patients can expect beneficial effect only when the values for hemoglobin and erythrocytes are elevated by administration of whole citrated blood. It is good practice to provide transfusions of whole blood for patients who are in need of more hemoglobin and erythrocytes but whose physiologic mechanism has neither the time nor the ability to produce these two products. This is particularly true when the patient is being prepared for operation or when the patient is extremely ill.

The best estimate of the result of transfusions of whole blood should be based on the percentage volume of erythrocytes (as determined by the hematocrit) and the values for hemoglobin and erythrocytes, all of which determinations are made three to four days after the transfusion.

3. To Increase the Content of Protein in the Blood.—Occasionally it is assumed that a protein intake that is adequate for a healthy person is also adequate for a sick person. This is erroneous. A healthy man weighing 150 pounds (68 kg.) and measuring 69 inches (175 cm.) in height has about 235 gm. of blood protein, of which 150 gm. is albumin. This is responsible for 85 per cent of the osmotic power of blood plasma.

It is advisable to establish proper values for circulating protein prior to operative procedures and to maintain them during convalescence. If the amount of protein is inadequate, a greater tendency to shock may exist, edema of the intestines and other tissues may cause disruption of incisions, delayed healing of tissues may occur or the resistance to infections may be reduced.

Strumia and McGraw stated that it is possible to restore the total amount of circulating protein to normal in hypoproteinemic patients and to maintain these patients free from the complications usually met in hypoproteinemia by the intravenous administration of sufficient amounts of plasma proteins in the preoperative and postoperative periods. Injected plasma proteins are metabolized in a manner similar to that of ingested proteins, but they are not metabolized as quickly. It is probable that failure to observe an increase in plasma proteins after injections of plasma is caused by the fact that the concentration of plasma protein is measured rather than the total amount of circulating protein.

When the administration of blood plasma is to be considered, patients may be divided into two categories: (1) Patients may have normal reserves of protein but, because of shock or hemorrhage, experience a rapid decrease in the volume of the circulating blood. These patients respond readily to transfusions of whole blood or blood plasma. (2) Patients may have a lowered reserve of protein, and thus the lack of proteins in the tissues cannot be corrected readily by administration of blood plasma. Even the use of relatively large amounts of plasma may fail to produce a sustained and appreciable increase in the concentration of plasma protein in these patients. Nevertheless, administration of plasma to these patients generally is followed by a distinct therapeutic benefit, probably because of an increase in the total amount of circulating protein.

The loss of plasma from extensive burns is followed by hemoconcentration, producing decreased cardiac output and lowered flow of blood. Many workers still maintain that the use of plasma and whole blood is the treatment of choice for burns.

The use of serum albumin in an attempt to decrease cerebral edema under certain circumstances has been reported.[3] More recently, the use of a 20 per cent solution of dextran has been employed for the same purpose.[2]

4. To Increase Hemopoiesis.—Blood transfusion seems to have some beneficial effect on hemopoietic power, although the exact mechanism is not understood. It is generally agreed that dissolved hemoglobin stimulates the production of new erythrocytes by direct effect on the hemopoietic organs. Blood transfusions also increase the storage of iron in the spleen, bone marrow and liver. Blood volume expanders have no part in this effect.

5. To Increase Immunologic Factors.—The immunologic effects of blood transfusions are not understood satisfactorily. It is possible that transfusions have some therapeutic effect in infections, perhaps by causing a generalized improvement because of the addition of the blood cells of the donor and perhaps because of the addition of normal antibodies from the healthy donor.

Conclusions

Transfusions of whole blood are valuable therapeutic agents. The use of blood plasma and some of the component parts of the blood also plays an important role. The so-called blood volume expanders must not be disregarded entirely. They may be life-saving agents under conditions when the need for increased circulating blood volume is immediate but when whole blood or one of the component parts of blood may not be available immediately. These blood volume expanders should not be used to the exclusion of transfusions of whole blood. In some instances, transfusions of whole blood may be supplemented by use of these blood volume expanders.

References

1. Bollman, J. L.; Knutson, R. C., and Lundy, J. S.: Volemic substances for replacement of blood. Arch. Surg., 63:718-727 (Dec.) 1951.
2. Lundy, J. S.: Personal communications to the author.
3. Seldon, T. H.; Faulconer, Albert, Jr.; Courtin, R. F., and Pino, D. M.: Postanesthetic encephalopathy: the postulation of cerebral edema as a basis for rational treatment. Proc. Staff Meet., Mayo Clin., 24:370-374 (July 6) 1949.
4. Strumia, M. M., and McGraw, J. J., Jr.: Blood and Plasma Transfusions. Philadelphia: F. A. Davis Company, 1949.

Case Report

HERPES ZOSTER

Report of a Case Occurring in an Infant Eight Months Old

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HERPES zoster occurring during infancy is extremely rare. In 1938 Lang[3] reviewed over 10,000 cases of herpes zoster and stated that the highest incidence of the disease in infants was less than 0.07 per cent of all cases. Comby[1] reported eighty-four cases of herpes zoster in children, the youngest being eight months of age. After an extensive review of the literature, Freud et al[2] found only five cases of the disease in the newborn period. To these they have added a case of herpes zoster occurring in a three-day-old infant. The following case is reported because of the young age at which it occurred.

Case Report

B. T., a white female child, aged eight months, was admitted to Ancker Hospital on December 15, 1948, because of an eruption confined to the right side of the chest. The mother stated that the eruption began about three or four days prior to admission. About the time the rash appeared the child was fretful, seemed feverish, and developed a cough and rhinitis. The lesions started on the posterior aspect of the chest, and new ones appeared rapidly so that at the time of admission it assumed a hemithoracic contour. The child was not exposed to any known case of varicella, herpes simplex nor herpes zoster.

The baby was of normal birth, weighing 8 pounds, and was the youngest of seven siblings. She developed normally and had one previous admission to the hospital at the age of four and-a-half months for acute bronchitis, from which she made an uneventful recovery. During the interval between hospital admissions she was normal and did not have any skin involvement other than mild intertrigo.

Physical examination showed a well-developed, well-nourished and alert white female infant who was not acutely ill, nor in any apparent distress. The pharynx and tonsils were moderately inflamed. A zonal eruption corresponding to the distribution of the fourth, fifth and sixth thoracic nerves was seen on the right side of the chest. The eruption was made up of groups of tense vesicles on an inflammatory edematous base. The lesions began just lateral to the thoracic spine and extended around the chest, ending anteriorly at the sternum.

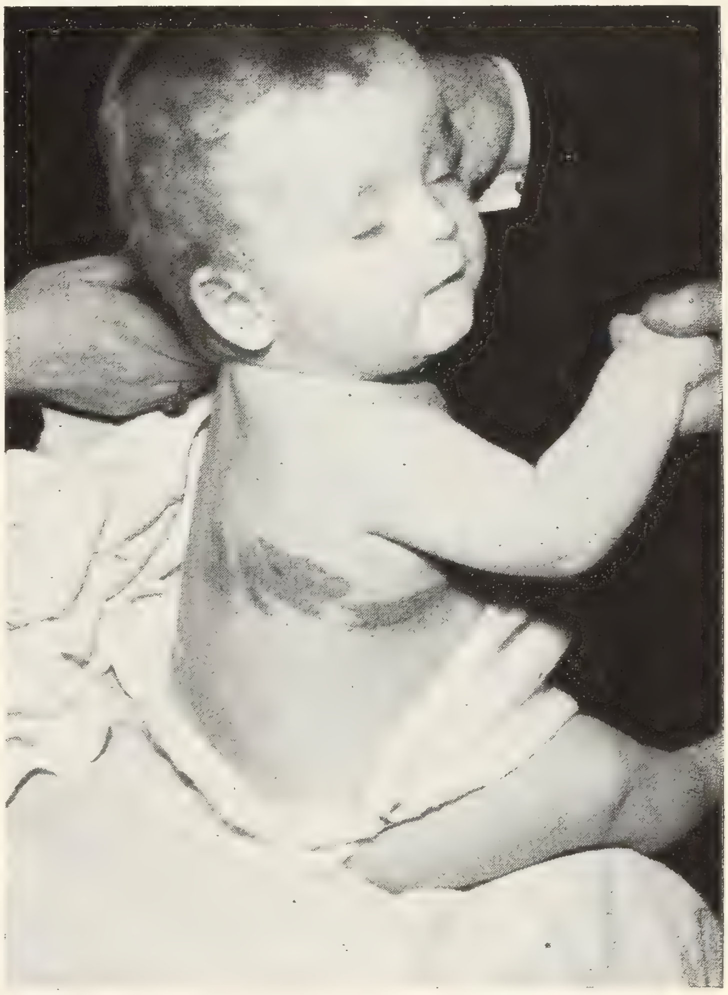

Fig. 1. Herpes zoster in an infant eight months old.

The eruption healed within two weeks; the progress was usual and the recovery uneventful.

References

1. Comby, J.: Herpes zoster in children. Bull. et mém. Soc. méd. d. hôp. de Paris, 46:992, 1922.
2. Freud, P.; Rook, G. D., and Gurian, S.: Herpes zoster in newborn; report of its occurrence in three day old infant. Am. J. Dis. Child., 64:895, 1942.
3. Lang, J.: Über die Häufigkeit des Herpes Zoster. Arch. Dermat. & Syph., 176:515, 1938.

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President's Letter

A HIGH RATE OF INTEREST

A high rate of interest in state politics was evidenced in Minnesota's September 9 primaries.

Computation of this increased interest is accomplished through a brief glance at statistics. The Republican vote for governor, for instance, approximated 400,000; the DFL vote for the same office reached about 250,000. Both totals represent increases over primary votes in 1948 and 1950.

In 1948 the DFL party totaled 234,000 in the primaries in Minnesota; in 1950, the vote was 231,000. Republicans cast 379,000 primary votes in 1948 and 351,000 in 1950. A normal primary vote is about 580,000. This year's approximated 650,000 votes.

It is interesting to note that voting tends to increase in the state when a Presidential election is slated for the same year. Of course, a factor of considerable weight in this year's higher vote is the active "get-out-the-vote" campaign carried on by several public-spirited organizations. It can be hoped that this increase is a barometer for forecasting a higher rate of interest in the elections in November.

These statistics, no matter how encouraging on a state level, are sadly overshadowed by the figures on America's voting record in comparison to that of other free nations. In 1948, for example, there were about 96 million eligible voters in the United States. But in that year, only 49 million—about half of the eligible electorate—cast ballots in the Presidential election.

That figure becomes even more startlingly realistic when it is lined up—and at the bottom of the list—with the tabulation of votes for other nations:

Australia	96 per cent voted in 1951
Great Britain	83 per cent voted in 1951
Sweden	80 per cent voted in 1950
Western Germany	75 per cent voted in 1949
Canada	74 per cent voted in 1951
Israel	72 per cent voted in 1951
United States	51 per cent voted in 1948

An admirable goal for any conscientious organization or individual citizen would be to do everything possible to move this nation up as far as possible on that list. A convincing campaign, pleading with citizens to vote, should not be necessary, for it should be considered a privileged duty to cast a ballot in a free election.

Professional people are not the least offenders in this poor showing of electoral interest. Doctors should work as hard an anyone to make better this higher interest which showed up in the primaries. The November elections can be the vehicle by which America can show the world that it is not lacking in an active political conscience.

A doctor's sincere pledge to become intelligently informed and then to turn that intelligence to voting on November 4 will be an example of good citizenship, and one of the finest ways to increase that rate of interest in vital local, state, national and international political affairs.

Roger L J Kennedy

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

CANCER DETECTION

"HOW LONG, O Lord, how long?" This question is often on man's mind in many areas of his activity. In few areas of human endeavor is this question asked with more fervor than in the field of cancer. Patients, physicians and cancer investigators, probing this mystery of nature, all look expectantly and hopefully to the day when cancer will no longer be the dreadful scourge it is today.

We know much about cancer. But there is much more we do not know. And how can we know? Only through patient and unrelenting questioning of the nature of cancer; of how it comes about and through what agencies it can be thwarted or prevented.

For almost 200 years, since anatomy was first studied, with a view to the examination and classification of diseases which affect organs, cancer has been largely in the domain of the pathologist. During the past seventy-five years, surgeons have affected an increasing concern over management of the cancer problem. And for approximately forty years roentgen therapy has been a strong therapeutic ally in certain areas of the cancer problem. Latterly, notable gains in the palliation of certain cancers has been accomplished through hormonal therapy and a few temporarily effective chemotherapeutic agents.

Surgery continues to be the mainstay of present-day therapy of cancer. The lament of surgeons is that so many cases come so late. When the cancer is local and has not penetrated beyond the organ in which the cancer had its origin and the regional lymph nodes are not involved, granted a good cancer operation is done including excision of the entire potential lymphatic drainage area, the cure rate is in the area of 75 per cent for a large number of cancers (breast, uterus, colon and rectum). For the year 1944, at the University Hospital, the five-year survival rate for all gastric cancers was 17.7 per cent, and for the resection group, in which the lymph nodes were negative, it was 64 per cent. This latter figure for the five-year interval between 1941 and 1945 was 56 per cent, and the total survival rate for the same period was 12.2 per cent. Bearing in mind the prevalent attitude toward gastric cancer of twenty-five years ago, this accomplishment offers a promising prospect.

Examination of our hospital records discloses the tragic situation that patients with gastric cancer are not coming to surgery earlier than they did fifteen years ago. In other words, as long as patients continue to come for treatment on the basis of symptoms, there will always be a fairly long lag phase. It has been quite definitely established for gastric cancer that the length of this silent interval is in the area of twenty months. It is very likely that the silent interval of other visceral cancers is of the same order of magnitude.

The major problem in cancer therapy today is the early recognition of cancer. Those words have rolled readily and comfortably off the lips of physicians for a generation. What has been done to give them meaning beyond the echo of a well-sounding but empty phrase? Sadly enough, very little. Can anything be done? Yes, indeed, something can be done, and now!

The figures published in this issue of Minnesota Medicine from the Cancer Detection Center at the University of Minnesota indicate that asymptomatic cancers are found frequently enough (1 per cent) among adults of more than fifty years to warrant continued probing of this method of attack upon the problem of earlier diagnosis of cancer. It is significant that, in more than 75 per cent of the cancers uncovered in this series, the regional lymph nodes were free of cancer. It is well known that when cancer is diagnosed on the basis of symptoms the converse is true; that is, lymph node involvement is observed in approximately 75 per cent of instances. It has become patently obvious in the last decade that the status of the regional lymph nodes in cancer is the most important determinant in the prognosis.

The promise of any idea is rarely apparent at its birth. Full maturation comes only with time. The techniques of the Cancer Detection Center are admittedly cumbersome and imperfect methods by which to recognize cancer. Yet, they are the best we have today. It would be nice to be able to detect cancer by far simpler means. And without question those means will come. Until simpler and more direct means are available, are we to hold back and say: all this labor is not worthwhile? That certainly has not been the attitude of the medical profession with other difficult problems.

The American people are expending many millions of dollars each year in the hope of resolving the cancer enigma. A considerable share of this expenditure goes for the support of research, and rightfully so. Research is the promise of the future. What is research? Will Mayo was fond of asking: should a method be discounted because it wears a practical label? The work of the Cancer Detection Center is imparting important meaning, comfort and hope to that easy phrase: earlier detection of cancer.

Every program has its detractors. This is not Utopia. The people of Minnesota and their physicians are making a contribution to earlier diagnosis of cancer in the support of the Cancer Detection Center. This activity, sponsored by the Council of the State Medical Association and supported by the Minnesota Division of the American Cancer Society, deserves the support of every physician in Minnesota. Progress is often painfully slow, for such, too, is the march of the mind. Not to advance is to retrogress. The work of the Cancer Detection Center indicates that progress in the recognition of cancer can and is being made by carefully selected screening tests. Who would discard these small gains until better methods are available?

In any issue affecting man, the two most important considerations are *cause* and *need*. That the fight against cancer is a great cause, no man need defend; that the need for better weapons is great is apparent on every hand. Cancer, when detected early, is curable. Let every physician lend his strength to meeting our needs in this important cause.

O. W.

Carcinoma of the gall bladder is notoriously an insidious disease and is usually not seen at an operable stage,

* * *

Abdominal pain, usually in the right upper quadrant, is the most characteristic symptom of gall-bladder cancer.

* * *

Cancer of the gall bladder, even in late cases, is often a relatively localized disease.

DOCTOR HENDERSON AND THE PRESIDENTIAL CAMPAIGN

On September 22, 1952, Dr. Elmer L. Henderson of Louisville, Kentucky, resigned as Chairman of the Co-ordinating Committee of the AMA which since January, 1949, has supervised the AMA National Education Campaign against socialized medicine. As of the same date Clem Whitaker and Leone Baxter, the director and manager respectively of the National Education Campaign, terminated their connections with the AMA. All three plan to devote their energies to the coming presidential campaign as individuals.

As the activities of the National Education Campaign terminate, it is only proper that appreciation should be expressed by the organized profession for the devoted service of Dr. Henderson who during these four critical years devoted his time and energies to the activities of the AMA. During these years he was president-elect of the national organization and simultaneously president of the World Health Organization. These gratuitous jobs are the biggest a physician can aspire to and are all man killers.

Dr. Henderson has come through what might be an ordeal to most of us with energy enough to be chairman of the newly formed National Professional Committee for Eisenhower and Nixon. This committee will enlist thousands of physicians, dentists, lawyers, engineers, accountants, pharmacists and other professional men and women in an aggressive bipartisan drive for the election of the Republican nominees for President and Vice President. Dr. Ernest Irons of Chicago and Dr. John W. Cline of San Francisco are vice-chairmen of the new committee as are also Harold J. Gallagher of New York, past president of the American Bar Association; Dr. Clyde E. Minges of Rocky Mount, North Carolina, past president of the American Dental Association; Robert Lincoln McNeil of Philadelphia, past president of the American Pharmaceutical Manufacturers' Association; Sidney L. Stolte of Saint Paul, past president of the National Society of Professional Engineers and John F. Forbes of San Francisco, past president of the American Institute of Accountants. Whitacre and Baxter will serve as campaign directors for the Eisenhower-Nixon professional committees drive. The committeee members are no longer officers of their respective professional associations and can take active part in political affairs without fear of criticism.

THE COMMITTEE FOR THE NATION'S HEALTH

RECENTLY in a column by Thomas L. Stokes in the *St. Paul Pioneer Press* (September 19) appeared a reference to Dr. Channing Frothingham, a prominent Boston physician and head of the Committee for the Nation's Health. To quote, "The doctor expressed surprise 'that General Eisenhower wastes words in attacking a scheme of federalizing medical care which has never been proposed in any bill before Congress and which is supported by nobody, least of all by those who support the decentralized free-choice-of-doctor plan of national health insurance which is backed by the President of the United States, the Congress of Industrial Organizations, the Committee for the Nation's Health and many other organizations.' " The doctor is sorry that General Eisenhower has been taken in by the AMA which has spent millions of dollars in publicizing the idea that national health insurance is regimented federal medicine. He (the doctor) states that under national health insurance, the public would receive medical care in the same way they do now by going to the doctor or hospital of their choice, the only difference being that the doctor and hospital would be paid from an insurance fund collected by the federal government along with federal security payment paid by the employe or employer and allocated to the states. He claims that no new army of clerks would be needed to handle the mountain of details which would be added if such a plan were installed. Doctors and hospitals would have nothing to do with the federal government as they would be paid from funds allocated by the federal government to the states.

Who is this Dr. Frothingham, who voices the absurd opinion that national compulsory health insurance would not alter the present status of the practice of medicine and would not require another army of federal employes? He is and has been for some years the head of the Committee for the Nation's Health, one of the strongest forces behind the administration's campaign for compulsory, tax-supported national health insurance. On its membership roll are such names as Eleanor Roosevelt, Philip Murray, William Green, Robert Sherwood and Max Seham. According to Secretary Lull of the AMA, ninety-two out of the 166 charter members of the Committee have been cited one or more times because of subversive connections or activities by the House Un-American Activities Committee. Over half of the members serving as officers and directors since its organization in 1946 have subversive records and have long been associated with avowed Communists. Poor company for good Americans!

DIABETES DETECTION WEEK
November 16-22

The purpose of designating one particular week as Diabetes Detection Week is to attract attention to the importance of detecting the unknown diabetic person. Diabetes, unknown and untreated, will lead to ill health and complications which could be forestalled by proper treatment. Here is one chronic disease for which, thanks to Banting and Best, there is a treatment which enables those with diabetes to lead normal lives, though it is not a cure.

The American Diabetes Association, Inc., with headquarters at 11 West 42nd Street, New York 36, New York, is again putting on a nation-wide Diabetes Detection Drive. State and local units are taking an active part in providing free testing of urine. The yearly drive merits the support of the profession.

MEDICAL ADVERTISING FIFTY YEARS AGO

We often think and with good reason that there is too much government regulation of our daily lives. One realm, however, in which there was a decided need, fifty and more years ago, of regulation was in the matter of the advertising of medical remedies in the lay press.

We recently had occasion to glance through a 1901 issue of a lay magazine published in Minneapolis and obviously catering to the interests of women. It is difficult to understand how such an array of advertisements of medical remedies so obviously false in their claims could ever have been tolerated. Intelligent readers must have recognized the falsity of the therapeutic claims so extravagently made and the low moral tone of advertising in general in past years.

In this particular journal a Chicago doctor advertises that he can prevent blindness and cure all diseases and defects of the eye. An offer of one hundred dollars is made for any case of deaf-

(Continued on Page 968)

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

HOXSEY CANCER CLINIC LOSES CASE

A recent decision of a U. S. District Court in Texas has prohibited distribution in interstate commerce of the brownish-black, and pink liquids intended for the treatment of cancer in man. The suit was against Harry M. Hoxsey and his clinic for treatment of cancer, which has been in operation in Texas. The Government had appealed an earlier decision favoring Hoxsey.

The trial was based on the grounds that pamphlets and booklets used by Hoxsey constituted labeling which was false and misleading and misbranded the drugs when shipped in interstate commerce. These booklets contained testimonials from many allegedly cured patients. At the trial much evidence was presented on results of experiments showing the ineffectiveness of the Hoxsey drugs.

According to a recent release of the Food and Drug Administration, "The Government presented scientific evidence that Hoxsey's claimed 'cures' fell into three categories: They included patients who had never had cancer and were treated for it at the Hoxsey Clinic; patients who had been cured of cancer before they went to the clinic and were treated for cancer; and patients who had cancer and still have it or who died under the Hoxsey treatment. In this connection, the Government presented the physicians who attended these patients and the hospital records connected with them, and pathologists who examined the tissue to make the diagnosis of cancer."

Principles Laid Down

The following important principles were laid down in the Circuit Court opinion, based on testimony by cancer experts:

"1. . . . there is only one reliable and accurate means of determining whether what is thought to be cancer is, in truth and fact, actually cancer. This requires a biopsy, a microscopic examination of a piece of tissue removed from the infected and diseased region.

"2. . . . the opinion of a layman as to whether he has, or had, cancer, or a like opinion as to whether he has been cured and no longer bears the disease, if, in fact, it ever actually existed, is entitled to little, if any, weight.

"3. . . . despite the vast and continuous research which has been conducted into the cause of, and possible cure for, cancer, the aggregate of medical experience and qualified experts recognize in the treatment of internal cancer only the methods of surgery, x-ray, radium and some of the radio-active by-products of atomic bomb production.

"4. . . . Upon such subjects a Court should not be so blind and deaf as to fail to see, hear and understand the import and effect of such matters of general public knowledge and acceptance, especially where they are established by the overwhelming weight of disinterested testimony."

False, Misleading Medicines

The court of appeals stated that "the overwhelming weight of the credible evidence requires a conclusion that the representation that the Hoxsey liquid medicines are efficacious in the cure of cancer is . . . false and misleading. The evidence as a whole does not support the finding of the trial court that 'some it cures, and some it does not cure, and some it relieves somewhat.' "

Clinic Operations Cited

The Court heard testimony describing the operation of the clinic, noting that most patients were charged $400 for treatment. As many as thirty-five to fifty patients were "treated" each day. The method of treatment was to meet the patient, take pertinent information and then send him to a history clerk who took the patient's history, stressing previous diagnosis and treatment. Routine blood and urine examinations were made and x-rays taken. The patient then was sent to the Medical Director, an osteopath, who, on the basis of the history and laboratory findings, made the "diagnosis" and prescribed for the patient. The report from the Food and Drug Administration states:

"On leaving the clinic, patients are given a paper shopping bag containing the so-called 'supportive treatment' of vitamin preparations, laxatives, antacid preparations, and the cancer medicine (either the brown or pink solution) which is referred to as 'the tonic.' Usually a 30-day supply is provided. The patient is instructed to write to the clinic about his progress and to request additional medicine, which is shipped without further cost. This procedure may continue indefinitely, but some patients are advised that they are 'cured' and discharged."

Medicines Described

Makeup of the cancer "cures" is described by the report from the Food and Drug Administration:

> "The Hoxsey medicines are of two types: one for internal and the other for external treatment. The external treatment is composed of several escharotics . . . The internal treatment is composed of two medicines known as the black or brown medicine and the pink medicine. The black or brown medicine is composed of cascara sagrada, potassium iodide, extracts of buckthorn, prickly ash, red clover blossom, alfalfa, sugar and water.
>
> "The pink remedy is composed chiefly of elixir of lactated pepsin containing variable amounts of potassium iodide. In addition to the above, which constitute the chief treatment, 'supportive treatment' consisting of preparations containing iron, urinary antiseptics, vitamins, laxatives, and antacids is administered."

HEALTH COMMISSION MEETS; HEARS MANY STATEMENTS

The President's Commission on the Health Needs of the Nation met in regional session in Minneapolis on September 2 and heard testimony from nearly fifty individuals and organizations. The nine-hour meeting included statements from medical, dental, consumer, labor and farm groups regarding what each thought the health needs of the area were, and what is being and what should be done about them.

Six Points Discussed

The commission's goal in this meeting was to direct inquiry into six points of health interests:

1. Current shortages in health personnel,
2. The adequacy of local public health units,
3. The present status and adequacy of medical research,
4. The degree to which hospitals and clinics meet existing needs,
5. The extent to which people are able to afford adequate medical care, with particular reference to present health insurance plans and their adequacy,
6. The adequacy of federal, state, and local health programs.

Association's Views Presented

The statement of the Minnesota State Medical Association was presented by its president, Dr. R. L. J. Kennedy, Rochester, Minnesota. Dr. Kennedy criticized the commission for its short duration and the meager time alloted to each participant. He stated: "It is necessary to preface our statement by making it clear that the doctors of Minnesota, undoubtedly the most competent group to know what the health needs of the state are, feel somewhat surprised and disappointed to have only been allotted ten minutes to cover the vast subject of health."

Dr. Kennedy then went on to enumerate the many excellent health improvements fostered by Minnesota doctors throughout the years—those improvements being major contributory factors in bringing Minnesota into the spotlight as one of the healthiest states in the nation. Dr. Kennedy stated:

> "Since 1900 the average length of life in the United States has increased from 49.2 years to 67.2 years in 1948. In 1900 the total death rate in the United States was 17.2 per 1,000 population; for 1950 the rate was 9.6 per 1,000. The lowest mortality rates were in the states of this area—Iowa, Nebraska, Minnesota, North Dakota, South Dakota, Kansas and Wisconsin, each having a rate of at least 0.5 below the national average."

Calls Commission "Political"

After recounting methods by which the medical profession had met and continues to meet health problems, Dr. Kennedy described the feeling concerning the commission itself:

> ". . . the physicians of Minnesota . . . feel that the hearing itself has been poorly timed; . . . that it is political by intent and nature, a product of those political forces which have constantly drummed the idea into citizens of our country that medical science and the doctors of the nation have not provided adequate health and who assert that the government can do better . . ."

Dr. Kennedy pledged medicine's continued efforts toward improving the already fine health conditions. He said, "We believe that the health needs of the nation are not overwhelming, that they are being solved by the continued efforts of men of medicine and related fields who are free to practice and work without interference and control, that future problems in this field will be solved most completely and most satisfactorily by a medical profession which remains free to continue its earnest quest for even better health for all people."

CIVIL DEFENSE ACCUMULATES SUPPLIES

Stockpiling of drugs, equipment and other medical items for civil defense has begun on a large scale. Seven regional warehouses in the nation are being used as storage places bv the Federal Civil Defense Administration. In event of an attack they would be rushed to disaster areas to supplement local and state-owned medical supplies.

The Federal Civil Defense Administration estimates that on July 15 it had $1,574,378 worth of supplies stockpiled. This is only 2.67 per cent of the more than $60 million made available by Congress for this purpose. Most of the remaining supplies have been contracted for, and it is anticipated that a marked increase in the stockpiling will be noticed in months ahead.

Thirteen participating states have already received over $3 million worth of supplies, a sixth of the amount on order. Nineteen other states, the District of Columbia and the territories have also joined, but supplies have not reached them as yet. In all, about 20 million dollars worth of medical supplies have been ordered by the states. This brings the total for all civil defense medical programs to 80 million dollars.

Items Listed

Antibiotics are the largest single item in both federal and state stockpiles at this time, Federal Civil Defense Administration reports. Other items include drugs, whole blood equipment, surgical textiles and some instruments.

Fiscal 1953 funds amount to $60 million less than Congress allotted to the civil defense department for over-all expenses for fiscal 1952, ending July 1. The department will make a major decision on division of these funds; how much to spend on the whole blood program and how much on orders for other medical supplies.

KEEP ORANGE JUICE IN REFRIGERATOR

Unlike bananas, reconstituted frozen orange juice belongs in the refrigerator. Placed there, at 40 degrees Fahrenheit, "vitamin C losses will be negligible," states the Council on Foods and Nutrition of the American Medical Association. Vitamin losses occur when the reconstituted juice is allowed to stand in an open container at room temperature. According to the Council, "it is reliably estimated that approximately 98 per cent of the vitamin C content of the fresh fruit may be retained in the frozen concentrated juice when modern acceptable methods are used." (Council on Foods and Nutrition: J.A.M.A., 146:1-35, 1951.

HYDROCORTISONE IN RHEUMATIC DISEASES

(Continued from Page 943)

cortisone acetate usually can cause a prompt alleviation of the acute disability. Perhaps the greatest practical use of this agent will be in various forms of traumatic arthritis.

6. A limited experience indicates no specific value in the local use of hydrocortisone acetate in acute periarthritis of the shoulder.

References

1. Dougherty, T. F., and Schnecheli, G. L.: Role of cortisone in regulation of inflammation. Proc. Soc. Exper. Biol. & Med., 75:854-859 (Dec.) 1950.
2. Goldman, L.; Thompson, R. G., and Trice, E. R.: Cortisone acetate in skin diseases: Local effect in the skin from topical application and local injection. Arch. Derm. & Syph., 65:177-186 (Feb.) 1952.
3. Goldman, Leo; O'Hara, E.; Herbert and Baskett, Jeanne: The detection of crystals following local injection of cortisone and compound F into the skin of man. Science, 116:17-19 (July 4) 1952.
4. Hollander, J. L., et al: Hydrocortisone and cortisone injected into arthritic joints. J.A.M.A., 147:1629-1635 (Dec. 22) 1951.
5. Personal communication.
6. Polley, H. F., and Bickel, W. H.: Punch biopsy of synovial membrane. Ann. Rheumat. Dis., 10:277-287 (Sept.) 1951.
7. Steffensen, E. H. et al: Topical cortisone in the treatment of anterior-segment eye disease. Am. J. Ophth., 34:345-356 (March) 1951.

MEDICAL ADVERTISING FIFTY YEARS AGO

(Continued from Page 965)

ness (caused by catarrh) that cannot be cured by Hall's Catarrh Cure. Several kinds of bust developers are advertised with illustration of what the user can expect. Vitalia cures cancer; Dr. Gunn's Liver Pills cure sick headache, clear the complexion and purifies the blood; Perry Davis' Painkiller affords a safe and quick cure for colic, croup, rheumatism and toothache; there are goiter cures, hair restorers, et cetera. Evidently health is not a new phase of public interest.

There was sore need for legislation to protect the less discriminating public from such fraudulent advertising. State laws directed toward dishonest advertising and the practice of medicine by other than licensed physicians as well as federal Pure Food and Drug laws and those affecting interstate commerce have done much for the public benefit.

Minnesota Academy of Medicine

Meeting of February 13, 1952

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, February 13, 1952. Dinner was served at 7:00 p.m. and the meeting was called to order by the Vice President, Dr. E. A. Regnier, in the absence of the President.

There were fifty-one members and four guests present.

Minutes of the January meeting were read and approved.

Dr. Ritchie read the annual Treasurer's report, and this was accepted.

The Secretary read a letter from Dr. John C. Brown, who is now living in California and who resigned. The Executive Committee recommended that his name be placed on the Senior Membership list. This was voted on and the transfer ordered.

The scientific program followed.

Dr. Asher A. White, of Minneapolis, then read his inaugural thesis on the subject, "Fallacy in Allergy," an abstract of which follows.

FALLACY IN ALLERGY

Abstract

ASHER A. WHITE, M.D.

Minneapolis, Minnesota

From the literature on allergy, an impression is gained of precise immunologic processes in operation in the production of disease. Despite the seeming clarity, when the physician begins to apply these methods in the study of the allergic patient, he finds that the expected results often fail to appear. As experience is gained, the student of allergy comes to realize that the methods of clinical allergy have serious shortcomings. The skin test is found to be unreliable, diagnosis of the allergic state uncertain, evaluation of offending allergens difficult and desensitization frequently misapplied. The present exposition is an attempt to reevaluate the known facts and to place fact and fallacy in perspective. We have attempted to pick out the fallacies, seek the reasons for their persistence, evaluate their results and review the facts with which they could be replaced.

The study of clinical allergy began after understanding of the phenomenon of anaphylaxis had pointed the way. The similarity between the dyspnea of the anaphylactic guinea pig and human asthma was apparent. Asthma and hay fever were observed to be concomitant so frequently that hay fever was also recognized as one of the manifestations of sensitization. Earlier work had suggested that airborne pollens were the cause of hay fever. It was a natural step to test the skin with suspected pollens and to attempt desensitization by increasing doses of the pollen suspected of causing trouble. The success of these methods gave rise to two basic errors of concept which underlie five additional fallacies. The fallacies must be abandoned and the underlying errors understood before the study of allergy can progress.

Underlying Errors

Fallacy 1.—Allergy follows the same laws which govern anaphylaxis.

Allergy and anaphylaxis are two different facets of the biologic process which results in the production of antibodies. There are important differences in the behavior of the two phenomena which lead to fallacies of procedure when the rules governing anaphylaxis are transposed to human allergy. The available knoweldge of immunologic processes may be compared to an iceberg. There is below the surface or beyond present knowledge a large portion of the mass. It may be, however, that the portion of immunology which lies beyond the threshold of knowledge contains the facts which will afford a better understanding of the laws which govern human allergy.

Fallacy 2.—Accuracy of diagnosis in pollenosis is due to the accuracy of skin test data.

The physician usually conceives that cause and effect relationships will be clearly manifest for other allergens, since they are clear in pollenosis. It is not realized that the accuracy of pollen diagnosis is due less to skin test results than to the exact knowledge of the degree and time of exposure to pollens, knowledge which is seldom ascertainable in symptoms produced by other allergens.

Fallacy 3.—Allergy is easily demonstrated.

The truth is that in a high percentage of allergic patients cause and effect relationships are not determined even after the most expert search.

Fallacy 4.—Skin tests are accurate.

Corollary Fallacies (a) Postive skin tests indicate allergic disease. (b) Substances causing positive tests produce symptoms. (c) Negative skin tests deny allergic disease.

The immediate skin reaction to test substances is not an accurate indicator as to which substances produce symptoms. A positive skin test does not signify that the patient is the victim of an allergic symptom nor that the substance causing the positive test will produce an allergic reaction. Substances producing positive skin reactions frequently cause no symptoms after exposure thereto. A positive skin test must be regarded as no more than a clue, the validity of which remains to be determined. The patient who shows no positive skin tests is not necessarily free from allergic disorder. Symptom producing substances frequently evoke no skin response.

Falacy 5.—The manifestations of allergy are pathognomonic.

Most physicians recognize that infection and emotion may induce symptoms identical to allergy. They are prone to use the term allergy to describe these symptoms without regard to the symptoms' mode of origin. The term should be restricted to symptoms produced by the antigen-antibody type of reaction to agents foreign to the body economy. The unfortunate result of looseness in use of the term allergy is that patients with syndromes due to causes unrelated to immune mechanisms are skin tested for reagin and are given desensitizing injections to substances having no relation to the symptoms.

Fallacy 6.—Small doses of allergen are symptom producing.

As a result of this erroneous belief inadequate methods of trial by exposure are used in evaluating allergic patients. In provocative feeding for instance, a small serving of the suspected food is usually offered. Experience indicates that in persons sensitized to a certain food, it may require three or four days of excessive feeding of that food before symptoms appear.

Fallacy 7.—Desensitization will protect against skin test positive inhalants. Desensitization is a satisfactory procedure against many inhalants toward which allergy has developed. The fallacy consists in regarding skin tests as affording accurate evidence of sensitization. As commonly practiced the diagnosis of allergic agents depends upon skin testing and is, therefore, seriously inaccurate. From the results of skin tests a diagnosis of sensitization to bacteria, to fungi, to house dust, or to other agents is made. Having arrived at a diagnosis based on false evidence, the fallacious conclusion is reached that desensitization to agents so diagnosed will be effective.

Discussion

Dr. F. W. Lynch, Saint Paul: I am glad to welcome Dr. White and tell him how much I enjoyed his sensible and sound discussion of allergy, a subject usually discussed with too much enthusiasm or with prejudice. It is said that eczema constitutes 10 to 30 per cent of the practice of allergists, and dermatologic practice includes many so-called allergic dermatoses, perhaps 35 per cent when the term is used broadly to include allergic reactions to drugs, contact dermatitis, and infectious and seborrheic eczematoid eruptions in addition to the atopic processes under consideration tonight. Practically all dermatologists agree with Dr. White's statement of the fallacy of depending on skin tests for foods, at least in patients with urticaria or atopic dermatitis. Reactions to tests for inhalants are in a more doubtful category but certainly not completely dependable. I think Dr. White has clearly stated a reasonable view as to the need for demonstrating a probable relationship between the allergic disease and the supposed sensitivity to house dust, pollens, et cetera, before proceeding with extensive (and expensive) attempts at desensitization.

It has been profitable to have Dr. White review the evidence and attempt to determine what is factual and what is fanciful in our assumed "knowledge" of allergy. Only on a factual foundation can further advances be expected to develop.

Dr. Jerome Hilger, Saint Paul: The allergic or altered-tissue reaction is common to all specialties. It is a striking thing to note the abhorence with which most medical men regard the implication that they are allergists. It seems that this is due, in large part, to the narrowness with which allergists have approached the problem. Foods and inhalants have constituted the major part of their interest. As is apparent from clinical observation, on the other hand, altered-tissue reactivity is more commonly derived from physical or emotional relationships than from the food or inhalant environment. Unless these former factors be given their place of relative importance, the whole subject of allergy becomes a narrow, inept one. I am inclined to agree that having the allergists isolate themselves into a narrow field as a speciality in medicine is a mistake. On the other hand, it is certain that they could not become a broad speciality covering altered-tissue reactivity in its broad sense for they would be encompassing the whole field of medicine. The subject has a very profound basis in reactions other than antigen-antibody. Certainly, the basal ganglia and the dependent or related endocrine axis are the heart of the problem. Accordingly, in Otolaryngology, we feel that the first approach to an allergic problem, in the true meaning of the word, is not through antigen-antibody testing but at the more productive root of the subject—the patient's basic physiologic balance.

It is good to have the fallacies of the narrow antigen-antibody approach exposed so frankly and factually as has been done by Dr. White this evening.

Dr. White, in closing: At a meeting of allergists a few years ago, the matter of Board Certification came up. Most of the responsible men made strong statements against a separate Board for certification in allergy. The general membership, however, voted for a separate Board.

In regard to the relationship between emotionally induced symptoms and those which are produced by antigen-antibody reactions, one may speculate in this way. It is known that certain forms of allergy are produced by the liberation of histamine in tissue cells. It may be that the reason the same phenomena can be produced by emotional reactions is that the substance liberated at the end organ in para-sympathetic nerve activity is acetylcholine which is a histamine-like substance.

Dr. Hilger has discussed the subject from the standpoint of the rhinologist and here we see the difference in definition of terms to which all of us are subject. He has used the term to apply to the symptom complex of edema of the nasal membranes, obstruction to the passage of air, and hypersecretion of mucus. This complex has been given other names such as vasomotor rhinitis and hyperesthetic rhinitis. It may be produced by antigen-antibody reactions, by bacteria and by functional nervous reactivity. My own preference is to use the term allergy only for the antigen-antibody type of reaction. The vasomotor rhinitis of infection is an interesting problem. The allergist and rhinologist sometimes discuss what is called intrinsic allergy of the respiratory membranes. The implication is that sensitization has developed to the bacteria which reside saprophytically or parasitically in the nasal membranes. There is, as yet, no proof as to whether this is an antigen-antibody phenomenon or one brought about by other forms of irritation. We simply know that it stimulates the reaction produced when we apply allergen to sensitized nasal tissues.

Dr. H. B. Sweetser, of Minneapolis, read his inaugural thesis on the subject, "Hiatus Hernia Masquarading as Coronary Disease." Lantern slides were shown.

HIATUS HERNIA MASQUERADING AS CORONARY DISEASE

H. B. SWEETSER, M.D.

Minneapolis, Minnesota

Angina pectoris literally is pain in the chest. More particularly, pain in the chest brought on by exertion, by emotion, or by a large meal, and relieved by rest and by vasodilators, especially nitroglycerin. This may or may not be accompanied by an abnormal electrocardiogram. If the electocardiogram is abnormal, we are usually quite satisfied with the diagnosis. If the changes in the electrocardiogram are minor or temporary, the patient is said to have coronary insufficiency; if they are severe and permanent, then the patient has a myocardial infarction. However, even with a normal electocardiogram in the presence of chest pain brought on by exercise and relieved by rest or nitroglycerin, angina pectoris is the presumptive diagnosis.

In the past three years I have three times made a diagnosis of angina or coronary thrombosis in patients who had as the cause of their pain hiatus hernia and who were relieved of their disabling symptoms by repair of the hernia—but whose surgery was delayed three months to three years because I was unconvinced that this condition could cause their symptoms.

Para-esophageal or hiatus hernia has been recognized for years as a cause for chest pain. Apparently, the first description of this anatomic abnormality was made by Paré in 1575. The first suggestion of associated symptoms was by Morgagni in 1769. After that there was little in the literature until 1919. Since then, there have been a great number of papers concerning diaphragmatic hernia. It was not, however, until 1931 that it was recognized that this hernia could give symptoms simulating those of angina pectoris.

In 1941, Chester M. Jones of Boston published the most complete description of the clinical picture. Since then, the literature has been full of good papers concerning diagnosis and treatment.

The textbooks mention hiatus hernia as another cause for anginal pain, and mention, conversely, anginoid pain as a symptom of hiatus hernia, but in both cases only incidentally.

Hiatus hernia is not a rare condition. Harsha says it is found in one-tenth per cent of routine chest films, and in routine gastrointestinal x-ray studies it occurs in .75 to 1.2 per cent. Sixty per cent are said to occur in people over fifty years of age and 30 per cent between sixty and seventy.

Symptoms may suggest peptic ulcer, intestinal obstruction, gallstone colic, cardiospasm and coronary occlusion. The most characteristic picture seems to be that of discomfort or pain on lying down and after meals, relieved by standing up and taking long breaths. The pain may be mild or severe, usually precordial, especially over the lower sternum or xiphoid and radiating either downward, usually to the left side of the abdomen, or occasionally upward toward the left shoulder, and sometimes down the left arm in the area characteristic of angina or coronary pain.

Report of Cases

Case 1.—A woman, aged sixty-seven, was seen in November, 1949. She had arthritis of the hands and a hypertension of 220/110. She was dyspneic on climbing one-half a flight of stars and had edema of the ankles after teaching all day. Glaucoma was already present, and two days after my first examination an operation was done for acute glaucoma. In February, 1950, she had a weak spell in class, and her dyspnea had increased so that she had to stop to rest two to five times on one flight of stairs.

On March 3 she had an attack of pain anteriorly in the left chest which radiated down the left side of the abdomen and was brought on by exertion. In the succeeding three weeks there were five similar acute attacks brought on by exertion or during meals, persisting until she vomited. On antispasmotics and sedatives there were three more attacks in ten weeks, the last one lasting four or five hours.

X-ray examination showed her hiatus hernia, and surgical repair was carried out on July 3, 1950 by Dr. Thomas Kinsella. One year later she had had no more of her "weak spells" and was able to climb stairs and carry on normal exertion, but was retired from teaching because of glaucoma and arthritis. Electrocardiograms before and after operation were normal and showed no change.

In this case, the location of pain was not entirely typical of angina pectoris, but the dyspnea on exertion and some elements in the onset of pain were. However, relief was obtained by repair of her hernia.

Case 2.—A man of fifty-three was seen in 1947 with a history of "angina;" that is, he had spells of pain under the sternum which radiated up to both sides of his neck and down both arms. These were precipitated by exercise, cold weather, and large meals, and lasted about five minutes. He had had a previous series of attacks four years before at the age of forty-four. He was slightly overweight; a moderate anemia was present, and his electocardiogram showed a depression of S-T_1 and $_2$ and a diaphasic T_4, which after a week became entirely positive. X-ray examination revealed a large para-esophageal hernia, but because of his cardiac condition, repair was not attempted. He changed his job, was careful about meals and exertion, and two years later was improved. In 1950 the attacks recurred, so in spite of his electocardiogram changing and because of pain continuing, in June, 1950, his hernia was repaired by Dr. Leo Culligan.

After that he had no attacks of pain for over a year, but now his doctor tells me that his pain is again present. Because of this recurrence, x-ray examination of his esophagus and stomach was repeated in January, 1952, and this time showed a small recurrence of his hernia. If his pain persists, he will now have a phrenicotomy.

This patient's symptoms were more confusing than those in the first case and accounted for a delay of three years in repair of his hernia. If it were not for the close correlation in time between the presence and absence of his hernia and the presence and absence of symptoms, it would still be difficult to believe that he did not have two diseases instead of one.

Case 3.—A woman of sixty-eight was seen first on June 19, 1948, complaining of chest pain which radiated down the left arm. In 1946 she was said to have had a "blood clot in her heart" and was kept in bed for four weeks. She had a relapse and was kept in bed two weeks more. She had had "asthma" all her life and had had heart trouble for ten years. Her blood pressure was normal, 150/85. Her heart was normal on physical examination. The electocardiogram was normal. She had a right rectus scar with hernia and a right inguinal hernia. Because of the character of her pain, my diagnosis was intercostal neuralgia. She had no relief from salicylates and heat, and two weeks later a diaphragmatic hernia was found by x-ray. She was treated with antispasmotics and sedatives, and was relieved for two weeks, when she was in an automobile accident and the pain recurred. After this she was seen at intervals for asthma (wheezes), left subdeltoid bursitis, pruritus ani and vulvi and pneumonitis. In February, 1951, she had "terrible" pains across her abdomen, relieved by three hot enemas.

In August, 1951, there was pain in her chest just to the left of the sternum radiating down the left arm but not to the shoulder, and she had trouble breathing. Her heart was normal, her blood pressure was 160/90, and the lungs were clear. However, her diaphragmatic hernia was much larger and so on September 20, 1951, her hernia was repaired by Dr. Kinsella. In November, 1951, she was still tired but had had no pain of "coronary type" at all and none down the left arm. The wheezing was much improved and she was thoroughly relieved that the pain which her family had come to consider as neurotic, had had a physical basis. Her electocardiogram showed left axis deviation but was otherwise normal throughout.

In August, 1952, she was entirely well.

In each of these cases there was pain which was most suggestive of angina or of myocardial infarction. One showed changes in his electrocardiogram which were thought to indicate myocardial damage; the other two showed no change. However, the picture in all was complicated and contained elements not quite explainable on the basis of heart disease.

The mechanism of "anginal" pain from hiatus hernia seems well established. In the large hernia, it is possible that simple mechanical displacement of the thoracic structures can cause dyspnea and pain.

In smaller hernias, the pain seems to be a referred pain of visceral origin. The peripheral areas of the diaphragm are supplied by the lower six thoracic nerves and pain from these areas is felt in the areas supplied by those nerves, i.e., in the side, back, and front below the sixth rib and down to the ilium.

The central part of the diaphragm is supplied by the phrenic nerve which arises from the third, fourth, and fifth cervical roots, and pain is felt in the skin areas supplied by the cutaneous nerves from these roots, i.e., in the shoulder, neck, and occasionally at the root of the thumb.

The esophagus is supplied by sympathetic nerves rising from the fourth to the sixth thoracic or, more likely, from the first to the sixth thoracic roots. Irritation of these nerves is felt in the upper thorax and on the inside of the arm and, if irritation is severe, it can extend to the distribution of the eighth cervical, i.e., to the little and ring fingers. Distention of the lower esophagus or the part of the stomach contained in the hernia, inflammation, or spasm initiated by emotion or excitement can all cause sympathetic over-stimulation and spasm in the smooth muscle. These motor disturbances are similar to those occurring in any hollow viscus and form the basis for most visceral pain.

Conclusion

Esophageal hiatus hernia is an important cause of symptoms which may simulate those due to serious heart disease. Differentiation, especially in the absence of electrocardiographic changes, may be difficult and depends, not only on a meticulous history and examination, but also on recognition by the physician that such confusion may occur at all.

Bibliography

1. Capps, J. A.: A Clinical Study of Pain; p. 98; New York: Macmillan, 1932.
2. Jones, C. M.: Digestive Tract Pain; p. 152; New York: Macmillan, 1938.
3. Jones, C. M.: Hiatus esophageal hernia. New England J. Med., 225:963-972 (Dec. 18) 1941.
4. Harsha, W. N.: Diaphragmatic hernia. Ann. West. Med. & Surg., 5:634-637, 1951.

Discussion

Dr. Leo G. Rigler, University of Minnesota: I was very much interested in Doctor Sweetser's presentation because we have had a long experience with hiatus hernia. Doctor Ude and I, I believe, reported the first series of cases in this part of the United States, although a larger series had earlier been reported from Boston. This was in 1928. These hernias are frequently missed when mass examinations are made and only the upright position used. This is because they undoubtedly spontaneously reduce themselves, especially in the upright position, while the patient is walking about. I recall being called to the operating room recently where Doctor Wangensteen was operating on a patient whom we thought had a very large hiatus hernia. He was unable to discover the hernia, although he found a sac around the stomach. On further study it became evident the hernia had reduced itself under the influence of the anesthesia and the relaxation. Interestingly enough, although at least one-third of the stomach had been above the diaphragm prior to operation, the opening in the hiatus was really not very large. I cite this case only to indicate how often this spontaneous reduction occurs.

In one of the films which Doctor Sweetser showed and in which he pointed to a peculiar shadow, the appearance was fairly characteristic of ulcer. It should be noted that hiatus hernia is commonly complicated by ulcer along the margin of the diaphragmatic orifice and this type of ulceration is one of the common causes of bleeding from the gastrointestinal tract.

We have had some experience with hiatus hernia causing symptoms similar to coronary disease. As far back as 1933, I can recall finding patients with hiatus hernia whose symptoms simulated angina pectoris. The famous story around our hospital concerns Dr. Logan Leven who, while he was a resident in our hospital, became acquainted with this syndrome. He then went to the Mayo Clinic where he saw the sister of a famous New York surgeon who had been all over the United States and been called a neurotic because of her anginal pains. On taking a careful history he found that the symptoms were greatly aggravated in the supine position, especially after she had been asleep, and he made a definite diagnosis of hiatus hernia which was later proved by X-ray examination.

Hiatus hernias are, in a large part, the result of sudden increases in antra-abdominal pressure which cause their herniation to occur although no doubt some change in the hiatus itself, either congenital in origin or as a result of age changes in the muscle, must first be present. With this in mind, Eneboe and I studied pregnant women to determine how much of a factor this was. We found evidence of hiatus hernia in about 20 per cent of multiparae and about 5 per cent of the primiparae. This compared with an incidence of something less than 2 per cent in the general run of our patients who came in complaining of symptoms. Interestingly enough, in the case of the pregnant women, after the termination of pregnancy, restoration to normal, occurred in a very high percentage of cases.

Dr. T. J. Kinsella, Minneapolis:—This subject is very interesting to me for several reasons. Confusion of this condition with coronary disease has been recognized for a long time. I remember well that Dr. Arch Logan taught us in 1921 that gall-bladder disease, hiatus hernia and coronary disease often presented similar symptoms.

Early in the picture, hiatus hernia may come and go as a sliding type of hernia in relation to position and abdominal pressure; hence, the necessity of making the x-ray examination in the Trendelenburg position. Symptoms in such patients may be relieved by lowering abdominal pressure by reducing weight. When in hiatus hernia the esophageal opening is into the pouch of the stomach above the diaphragm, ingestion of food distends the pouch pulling more and more of the stomach through the diaphragm. The occurrence of pain after a full meal or upon lying down should suggest hernia.

Dr. Kerkhof and I reported an interesting case last fall before the Minnesota Society of Internal Medicine. This patient had had a hiatus hernia which was repaired surgically and the phrenic nerve crushed. Six months later when pain recurred, a diagnosis of coronary disease was made. Dr. Kerkhof then saw her and recognized the trouble as a recurrence of the hernia. Relief was again obtained by interruption of the phrenic nerve. On two separate occasions about a year apart, recurrent pain was again diagnosed as coronary disease. Permanent relief was finally obtained by transthoracic resection of the phrenic nerve. The pain resulted from incarceration of a small gastric pouch. It is very important that the correct diagnosis be made for I am not anxious to operate upon a patient who has had a recent coronary infarction.

Dr. C. N. Hensel, Saint Paul:— It was back in 1945 that I first had my attention called to the fact that symptoms from hiatus hernia might simulate those arising from coronary sclerosis.

In the *Journal of the American Medical Association* for June, 1945, Doctor W. E. Clark of Washington, D. C., published an article entitled "Gastrointestinal Conditions Simulating or Aggravating Cardio-Vascular Diseases."

In this article he cited the case of a physician, aged fifty-two, who had attacks of pain over the sternum and down the arm, which would rouse him from sleep about 3 a.m. and were not completely relieved by ½ grain of morphine. There was referred pain to the inner aspects of both elbows and the little fingers of each hand. Gastric symptoms were entirely absent. Fever was absent, the leukocyte count was normal, the electrocardiogram was normal and the heart examination was normal. He stayed in bed for four days. His symptoms persisted in a mild form, but were aggravated by nervous tension.

He took a vacation in Florida for six weeks and played golf with only slight lessening of chest and arm pain.

An orthopedist then diagnosed the pain as due to faulty posture and advised exercises which were taken from April to September, but these brought no relief.

Finally, since the pain was localizing over the lower third of the sternum and discomfort after meals (relieved by belching) was becoming more frequent, a gastro-enterologist was consulted and he suggested that the symptoms might be produced by an hiatus hernia and this was demonstrated by x-ray. The establishment of the diagnosis was of decided value to the morale of the patient.

Medical management for some months was of uncertain benefit. Radical cure by surgery was deemed unwarranted, but dilatation of the esophagus was performed and there was a gradual abatement of symptoms.

Not all patients with hiatus hernia have symptoms.

There appears to be three groups. The first has a short esophagus and the cardiac end of the stomach is up in the chest and has probably always been there—these are apt to be symptom free.

In the second group the hiatus is large enough so that the stomach can herniate into the chest and return again below the diaphragm and not get caught. These also are apt to be symptom free.

In the third group the hiatus is small and when a small portion of the stomach herniates, it is apt to be caught and become incarcerated. This type is likely to cause symptoms.

Dr. Clark believes that patients with hiatus hernia are more apt to have symptoms with eating than with effort.

Dr. Tinsley R. Harrison in an article on "Clinical Aspects of Chest Pain" *American Journal of Medical Science*, 207:561, 1944, reported two interesting cases of angina of effort who also had attacks of chest pain on lying down.

Case 1.—A white man, aged fifty-five, complained of a feeling of sternal pressure radiating to the left shoulder, brought on by walking and relieved in 3-8 minutes by rest.

He had also noted that when he would lie down, the discomfort would set in within a few minutes and would become progressively worse until he assumed a sitting position, when the pain gradually disappeared. He insisted that the discomfort produced by lying down was identical in location and character with that caused by effort. However, the discomfort in the recumbent position tended to last longer if he remained in this posture. Sitting in a chair with the feet elevated would likewise produce a typical attack, while sitting in a chair in an upright posture with feet on the floor did not produce pain. Nitroglycerine relieved the pain produced by effort and also that produced by recumbency.

Repeated roentgenologic studies of the stomach revealed no evidence of hiatus hernia.

Electrocardiograms were made in various positions and also before and after exercise. It was found that the recumbent posture produced the same inversion of the T-wave in Lead I as occurred following effort.

Several months later, while walking slowly, the patient suddenly fell to the ground and expired.

This is an example of angina decubitus. The mechanism of pain production here is unknown.

Case 2.—A white woman, aged sixty-five, had had several attacks of "pressing" pain localized just to the left of the sternum in the precordial area, while washing dishes, and two attacks while walking uphill. Standing still or sitting quietly brought relief in a few minutes. In addition she had had numerous attacks of a similar nature on getting into bed.

Five weeks before admission to the hospital she had a severe attack of pain lasting several hours and associated with an initial rise in systolic blood pressure at 180 mm. followed by a fall to 120 mm., her usual pressure being about 160 m.m.

Several days later her physician heard a friction rub over the precordium which disappeared in 48 hours; at the time she had a slight fever.

When she was seen some weeks later the physical examination was negative except for minimal hypertension and slight cardiac enlargement.

Electrocardiogram revealed inpersion of T-wave in the precordial lead.

Fluoroscopic examination of the stomach showed a small hiatus hernia.

Note: The pain induced by recumbency was not relieved by nitroglycerine, but was benefited by atropine.

This patient has both coronary disease and hiatus hernia.

Dr. Chester Jones has collected 128 cases of hiatus hernia from his own personal cases and from those of the Massachusetts General Hospital. He found that the intake of food, especially a large meal, initiated substernal pain in fifteen out of twenty cases of hiatus hernia. Rather less frequently the act of lying down initiated symptoms of substernal pressure.

He found that nitroglycerine gave some relief, but was not the prompt and characteristic relief that is usually obtained in angina. However, belladonna gave relief to pressure in the chest, in eleven out of eighteen cases.

Since reading this article, I have had all my patients with doubtful chest pain examined in the head-down position for hiatus hernia, but so far I have found none.

Dr. Edward T. Evans, Minneapolis.—As a preface to my discussion, may I inform the members that I was a general surgeon from 1922 to 1926. In the reports of the Western Surgical Association meeting of 1924, you will find a case report of my father's in which he and I did a Polya anastomosis, which was carried out between the esophageal sacculation and the stomach because the sac could not be mobilized. I recall that I had a discussion with Doctor Adson as to whether or not one could safely sacrifice the left vagus and pheneric nerve if necessary.

In the historical review, I feel that Doctor Truesdale, of Providence, Rhode Island, should be included because his contributions to this subject were pioneer.

Dr. Wallace Ritchie, Saint Paul: There is another addition to that list of gall-bladder disease, hiatus hernia and coronary disease, and that is cervical disc. It is rare, but it does exist.

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

AUREOMYCIN IN INFECTIONS OF THE URINARY TRACT

(Continued from Page 948)

in which there was obstruction of the urinary tract or an indwelling tube or both. There was no case in which the original organism was known to have changed its sensitivity or to have become resistant to the antibiotic used.

Treatment with aureomycin was stopped in one case because of facial edema; however, the patient was receiving cortisone also. In another case use of the drug was stopped because of nausea. A third patient complained of minimal anal burning in spite of the fact that she was receiving only 0.75 gm. of aureomycin a day.

Summary and Conclusions

On the basis of this study it is concluded (1) that almost all infections of the urinary tract caused by Escherichia coli and Aerobacter aerogenes may be controlled by small doses of aureomycin in spite of the fact that the results of present sensitivity tests made before treatment may indicate the contrary and (2) that Pseudomonas aeruginosa and Proteus vulgaris are usually not sensitive to aureomycin but, when *in vitro* tests are available, they may be found occasionally to be sensitive to the drug in the urinary levels attainable with large doses.

Streptococcus faecalis responded to treatment with aureomycin in all the 5 cases in which it was isolated; Micrococcus pyogenes responded in two of the three cases in which it was isolated.

The side reactions to aureomycin in the low doses here given were negligible.

No increase in resistance of the bacteria to aureomycin was discovered in this group of patients studied.

References

1. Collins, H. S., Wells, E. B., Paine, T. F., Jr., and Finland, M.: Urinary excretion of aureomycin. Proc. Soc. Exper. Biol. & Med., 69:174-175 (Oct.) 1948.
2. Duggar, B. M.: Aureomycin: A product of the continuing search for new antibiotics. Ann. New York Acad. Sc., 51:177-181 (Nov. 30) 1948.
3. Finland, Maxwell, Collins, H. S., and Paine, T. F., Jr.: Aureomycin, a new antibiotic. Results of laboratory studies and of clinical use in 100 cases of bacterial infections. J.A.M.A., 138:946-949 (Nov. 27) 1948.

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REGULAR CORPS EXAMINATION FOR MEDICAL OFFICERS, USPHS

A competitive examination for appointment of Medical Officers to the Regular Corps of the United States Public Health Service will be held on January 6, 7, and 8, 1953. Examinations will be held at a number of points throughout the United States, located as centrally as possible in relation to the homes of candidates.

The Regular Corps is a commissioned officer corps composed of members of various medical and scientific professions, appointed in appropriate categories such as medicine, dentistry, nursing, engineering, pharmacy, et cetera.

Appointments will be made in the grades of Assistant Surgeon (equivalent to Navy rank of Lt., j.g.) and Senior Assistant Surgeon (equivalent to Lieutenant). In making assignments, consideration is given to the officer's preference, ability, and experience; however, all commissioned officers are subject to change of station and assignment as necessitated by the needs of the Service. Appointments are permanent in nature and provide opportunities to qualified physicians for a life career in clinical medicine, research, and public health. Applicants who successfully complete this examination may ordinarily expect appointment as soon as they become eligible.

Application forms and additional information may be obtained by writing to the Chief, Division of Commissioned Officers, Public Health Service, Federal Security Agency, Washington 25, D. C. Completed application forms must be received in the Division of Commissioned Officers *no later than November 25, 1952.* Applications received after that date may not be accepted and will be returned to the applicant.

MEDICAL SERVICES FOR MILITARY PERSONNEL

In order that civilian hospitals and physicians may be familiar with the only circumstances under existing laws whereby they can be compensated from appropriated funds for medical services furnished military personnel, the following information is furnished:

(a) Charges for civilian medical treatment furnished military personnel on duty or who are absent from their station on pass, sick leave, ordinary leave, or terminal leave and who are injured or become ill, are payable from public funds *only* when the required treatment cannot be furnished from nearby facilities of the Army or other Federal agency.

(b) Civilian hospitals and physicians should limit their treatment of military personnel to emergency conditions of an acute nature, as charges for treatment of chronic conditions or elective medical or surgical treatment *cannot* be allowed.

(c) Private rooms and special nurses should not be provided unless prior authorization therefor is obtained from the Chief, Minnesota Military District, 1006 W. Lake Street, Minneapolis, Minn.

Military personnel who are absent from their station without proper authority (AWOL) are *not* entitled to civilian medical treatment at public expense.

In order to be assured of being remunerated for their services, civilian hospitals and physicians should conform to the following:

(a) On admission of a service man, hospital authorities should ascertain that the individual is actually in the active military service, and whether he has in his possession copies of orders authorizing absence from assigned station, and whether such orders authorize ordinary leave, sick leave or terminal leave.

(b) Immediately notify the commanding officer of the station to which the individual is assigned and the Chief, Minnesota Military District, 1006 West Lake Street, Minneapolis 8, Minnesota, of the fact of illness, by wire or letter, giving his name, rank, organization and the diagnosis.

(c) If an Army hospital or dispensary or any other Federal hospital or dispensary is located in the vicinity, telephone request should be made on that installation for ambulance transportation and required attendants to remove the patient to a Federal medical installation. No patient will be transferred where it is thought that the transfer might jeopardize the patient's condition, however. Military authorities will be notified immediately.

MOBILE ARMY SURGICAL HOSPITAL

A recent announcement by the office of the Surgeon General of the Army states that the Mobile Army Surgical Hospital (MASH), organized just two weeks after the outbreak of the Korean war and located at its present position just behind the front lines since last October, has just treated and evacuated its 50,000th battle casualty. Helicopters and ambulances have brought in wounded troops for American, Korean, British, Canadian, Australian, New Zealand, Filipino, Turkish, Columbian, Ethopian, Thai, French, Netherland, Belgian, Luxemburg and Greek units. Hospital personnel takes pride in the amazing patient recovery rate of 99.8 per cent.

MILITARY SURGEONS' MEETING

Reserve officers of the medical services of the Army, Navy and Air Force will be given complete information on all new directives, including pending Congressional legislation, governing their commissions, active duty requirements and retirement benefits in one of the feature presentations of the fifty-ninth annual meeting of the Association of Military Surgeons which will be held at the Statler Hotel, Washington, D. C., November 17-19, under the presidency of Major General Harry G. Armstrong, Surgeon General of the Air Force.

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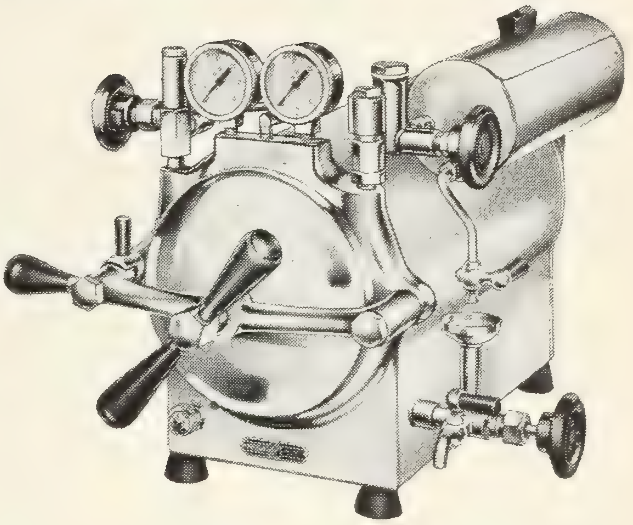

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Point credits for retirement will be given all eligible reserve officers attending the scientific session

President Truman has been invited to speak at the traditional banquet of the Association on the evening of November 19.

The program will include the following speakers: Louis H. Bauer, M.D., President of the American Medical Association; Dr. Otto Brandhorst, President of the American Dental Association; Melvin Casberg, M.D., Chairman, Armed Forces Medical Policy Council; Brig. Gen. J. A. McCallam, President-elect American Veterinary Medicine Association; Rear Admiral Lamont Pugh, Surgeon General of the Navy; Isador S. Ravdin, M.D., Philadelphia, Pennsylvania; Howard A. Rusk, M.D., New York City, New York; Brig. Gen. Oscar P. Snyder, Dental Corps, USA; Brig. Gen. William L. Wilson, USA, Federal Civil Defense Administration.

VA COURSE IN PSYCHIATRY AND NEUROLOGY

The Veterans Administration is instituting a four-month intensive training course in psychiatry and neurology to fit the needs of physicians without such previous training who are assigned to duty in twenty-two predominantly psychiatric hospitals. Physicians who have been engaged in general practice may request this training upon applying for a position at one of these hospitals.

The course will be held at the VA Hospitals in Coatesville, Pennsylvania; Palo Alto, California; and a joint Downey-Hines, Illinois, program near Chicago, Illinois. Physicians will be employed at salaries commensurate with their training and experience (salary range: $5,500 to $11,800 per annum) and assigned to the course with travel and per diem for the four-month period.

Information and applications may be obtained from your nearest VA Hospital or Regional Office, or by writing to the Chief Medical Director, Veterans Administration Central Office, Washington 25, D. C.

POSTGRADUATE COURSE, CHEST DISEASES

The Fifth Annual Postgraduate Course on the Recent Advances in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the New York State Chapter of the American College of Chest Physicians, will be presented at the Hotel New Yorker, New York City, November 10-14, 1952.

This course is open to all physicians, but the registration will be limited. Tuition fee is $50.00; applications will be accepted in the order in which they are received.

A copy of the prospectus together with an application form can be secured from the: Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois.

This course has been approved for credits by the American Academy of General Practitioners.

Migraine In Children

"Migraine may appear during the first years of life. The presence of subjective signs, such as headache and flimmer scotoma, is often difficult to determine in young children. The true nature of the symptoms frequently remains obscure for years."

Vahlquist, B. and Hackzell, G.: Acta Paediatrica *38*: 622 (1949).

NO. OF CASES	SEX	AGE AT ONSET	CYCLIC VOMITING	DURATION OF ATTACK	INTENSITY
31	8 ♀ 23 ♂	3 yrs. (mean)	3 out of 31	2½ hrs.	severe in all cases

TABLE CONT'D

NO. OF CASES	UNI-LATERAL HEADACHE	NAUSEA	FLIMMER SCOTOMA	VERTIGO	HEREDITY
31	18 out of 31	31 out of 31	12 out of 31	6 out of 31	20 out of 31

(reference given above)

In a study of 400 adult migraine patients, it was revealed that 34% had suffered attacks before the age of 15.* These investigators concluded that childhood migraine was a much greater clinical problem than was previously believed and that psychodynamic mechanisms played an important part in the disease.

These criteria are useful in diagnosis:

Headache attacks with symptom-free intervals plus (at least two of the following) nausea, scintillating scotoma, hemicrania, and hereditary predisposition.

For symptomatic relief in these cases, Cafergot®, N.N.R. (ergotamine with caffeine) may be administered orally. For best results, give adequate dosage promptly.

For children within the age range 7 to 12 years—Cafergot® is administered, one tablet when the attack appears imminent followed by one additional tablet within 30 minutes. Not more than two Cafergot tablets should be administered to children within this age range.

In the adolescent age group, 12 to 18 years of age, the dosage may gradually be increased as necessary up to the usual adult dose, i.e., two tablets when the attack appears imminent followed by one tablet doses at half hour intervals until the attack is aborted. *(Total maximum dose for adults: six tablets for each attack.)*

*Katz, J., Friedman, A.P., and Gisolfi, A.: New York State J. Med. 50: 2269 (Oct.) 1950.

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GENERAL PRACTICE REFRESHER

The program for the second annual Fall Refresher of the Minnesota Academy of General Practice to be held at Hotel Radisson on Wednesday, October 29, 1952, will be as follows:

8:20	Medical Film
9:00- 9:20	Tague C. Chisholm, M.D. "Treatment of Hernia in Children"
9:20- 9:40	Paul S. Blake, M. D. "Head Injuries"
9:40-10:00	R. N. Bieter, M.D. "The Antihistamines and Related Drugs"
10:00-10:20	L. A. Lang, M.D. "Local Anesthesia in Obstetrics"
10:20-10:40	Exhibits
10:40-11:00	Mr. Manley Brist "The Doctor and the Law"
11:00-12:00	Phillip Lewin, M.D. (Chicago) "Painful Feet"
12:00	LUNCHEON Philip Thorek, M.D. (Chicago) "Jaundice" To be discussed by Cecil J. Watson, M.D.
2:00- 2:40	Symposium—Skin Disease: E. T. Ceder, M.D., and Orville Ockuley, M.D. "Treatment and Management of Dermatitis"
2:40- 3:20	Symposium—Office Gynecology: Melvin B. Sinykin, M.D., and Louis Friedman, M.D. (St. Paul)
3:20- 3:40	Exhibits
3:40- 5:00	Symposium on Hypertension 1. E. T. Bell, M.D. (Moderator) 2. A. C. Corcoran, M.D. (Cleveland) 3. J. E. Estes, M.D. (Rochester)
5:00- 5:30	Social Hour

Reservations should be made with Dr. Robert Quello, 730 La Salle Building, Minneapolis, Minnesota. There will be no registration fee. $4.00 luncheon ticket is required for admission.

CONTINUATION COURSES

On November 21 and 22, the University of Minnesota will present a *Conference on Pemphigus and the Bullous Dermatoses* for dermatologists. The one-and-a-half-day session will be devoted to the consideration of the pathology, physiology, clinical characteristics, and treatment of the bullous dermatoses.

Several distinguished authorities in this field will participate: Dr. Herman Beerman, Chairman and Professor, Department of Dermatology and Syphilology, Graduate School of Medicine, University of Pennsylvania, Philadelphia; Dr. Walter F. Lever, Assistant Professor, Department of Dermatology, Harvard University Medical School, Boston; and Dr. Stephen Rothman, Professor and Head, Section of Dermatology and Syphilology, University of Chicago. The course will be presented under the direction of Dr. H. E. Michelson, Professor, Department of Medicine, and Director, Division of Dermatology; and the remainder of the faculty will include members of the clinical staff of the University of Minnesota Medical School and the Mayo Foundation. The conference will be held in the Center for Continuation Study on the University of Minnesota campus.

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PEDIATRICIANS' SYMPOSIUM

Prominent researchers in the field of electrolyte metabolism (the way in which various salts are handled inside the human body) visited the University of Minnesota campus, September 22-24 for a national symposium on the metabolism of potassium (a salt found in the human body principally inside body cells). The three-day meeting which was of special interest to pediatricians, was sponsored by M and R Laboratories, Columbus, O.

Lecturers at the sessions in the Minnesota Museum of Natural History includes Dr. Daniel C. Darrow, Yale university pediatrics professor, who spoke on "The Role of Water and Electrolyte Deficits in Infantile Diarrhea"; Dr. Willis H. Thompson, assistant pediatrics professor at the University of Minnesota, who talked on "Antagonism Between Sodium and Potassium in Their Effects on Glycosuria and Blood Pressure in Diabetic Children"; and Dr. Thaddeus S. Danowski, professor of research medicine, University of Pittsburgh, who discussed studies in diabetic coma and acidosis.

Two other speakers were Dr. Robert Trail, a colleague of Dr. Danowski's, on "The Relationship of Potassium Metabolism to Cardiac Function," and Dr. Howard B. Burchell, associate professor of medicine, Mayo Foundation, speaking on "Electrocardiographic Changes Related to Disturbances in Potassium Metabolism."

Dr. Irvine McQuarrie, head of the University of Minnesota's pediatrics department, was general chairman of the symposium.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

At the annual meeting of the Southern Minnesota Medical Association held at Austin, September 9, the following officers were elected:

President: Dr. H. J. Nilson, Mankato; First Vice President, Dr. William Bernstein, Saint Paul; Second Vice President, Dr. David P. Anderson, Austin; Secretary-Treasurer, Dr. C. F. Strobel, Rochester (re-elected).

Dr. John D. Dahlstet was awarded a medallion for making the outstanding case report, one dealing with Friedlander's pneumonia. The outstanding scientific paper was presented by Dr. L. M. Hammer, on the treatment of cutaneous malignancies.

UPPER MISSISSIPPI MEDICAL SOCIETY

The Upper Mississippi Medical Society met at Bemidji, September 6, with Dr. Maurice Mosby of Long Prairie, presiding. Dr. G. I. Badeaux of Brainerd is the permanent secretary.

Scientific papers were presented at the morning session. Dr. L. C. Lundsten of the Bemidji Clinic presented a diagnostic problem with its solution; Dr. J. W. Griffin, also of the Bemidji Clinic staff, gave his experiences with acute and chronic pancreatitis; Dr. A. H. Benson, urologist, Little Falls, outlined indications for cystoscopy and spoke on the more common urologic disorders.

Dr. Douglas Johnson, Little Falls, just back from an American Medical Association public relations meeting

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at Chicago, spoke at the afternoon meeting. Dr. Charles Vandersluis of Bemidji, was in charge of the general arrangements for the meeting.

FAMILY NURSING SERVICE

October 16 to December 11 are the dates selected by Family Nursing Service, Wilder Health Center, Saint Paul, for the next series of eight classes for expectant mothers. The classes will be held each Thursday morning from 10 to 11:30 a.m. at the YWCA, 123 W. 5th Street.

The emphasis is placed on prenatal care to impress the expectant mother with its importance. The whole series is designed to supplement the physician's instructions.

The classes are taught by a public health nurse and the Nutrition Consultant. The subject matters include the anatomy, physiology of pregnancy, progress of childbirth, mental and personal health, child care, and development and nutrition. Emphasis is placed on nutrition, mechanics of labor, and care of the new baby. Nutrition is discussed with respect to its value to the mother during pregnancy and at time of labor and delivery. The importance of adequate nutrition for the baby during the prenatal period is also reviewed.

Registration fee is $2.00. An expectant mother may enroll for these classes by calling Family Nursing Service, CEdar 0311 or GArfield 8181.

Woman's Auxiliary

AUXILIARY PLANS FALL MEETING

The annual fall School of Instruction of the Woman's Auxiliary to the Minnesota State Medical association will be held in the Hotel Saint Paul on October 10.

Auxiliary members will be privileged to hear Senator Edward J. Thye at the 12:30 p.m. luncheon. Following this, Mrs. James McDonnough, Chicago, fourth vice president of the Woman's Auxiliary to the American Medical Association, will discuss organizational problems, and Mrs. Harold F. Wahlquist, Minneapolis, immediate past president of the national auxiliary, will report on the Minnesota Public Health Conference.

The morning session will include the Fall board meeting and will be followed at 10:15 a.m. by a public relations panel. Members will hear Wallace Fulton, Acting Director of the Division of Public Health Education, Minnesota Department of Health; Victor Cohn, science writer for the *Minneapolis Morning Tribune;* Jim Bormann, news director, WCCO; and Mrs. Louis Minion, Home and Community Director for the Minnesota Farm Bureau Federation.

Following the afternoon speakers, auxiliary members will hold round-table discussions for instructing new committee chairmen in their duties for the coming year.

Mrs. Leonard Arling, Minneapolis, is chairman of the School of Instruction meeting.

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30 days of Nurse at Home	5.00 per day	10.00 per day	15.00 per day	20.00 per day
Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
COSTS (Quarterly)				
Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00
Child over age 19	2.50	5.00	7.50	10.00

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In Memoriam

WILLIAM PAUL EUGENE BERWALD

William Paul Eugene Berwald, former fellow in neurosurgery, Mayo Foundation, Rochester, Minnesota, died on June 11, 1952, in San Bernardino, California.

Dr. Berwald was born July 11, 1910, in Syracuse, New York. He received the degree of M.D. in 1935 from Syracuse University. He interned at the Syracuse University Hospital of Good Shepherd for one year, and was assistant to Dr. W. Williams and intern at Highland Hospital and St. Mary's Hospital in Rochester, New York, for one year. He entered the Mayo Foundation as a fellow in neurosurgery in July, 1937, and left the Mayo Foundation in June, 1939. He practiced neurosurgery for several years with Dr. W. Williams in Rochester, New York, after which he went to Patton, California, where he practiced neurosurgery until the time of his death. He was affiliated with Redlands Community Hospital in Redlands and Patton State Hospital in Patton.

Dr. Berwald was a member of Alpha Omega Alpha and Sigma Xi.

JUSTIN CHARLES LANNIN

Dr. J. C. Lannin, a practitioner of Mabel, Minnesota, since 1911, died on August 26, 1952, in Saint Paul. He was sixty-nine years of age.

Born at Winchester, Ontario, on July 11, 1883 he attended the local schools. He taught school before attending McGill University where he graduated in medicine in 1909. He interned at Montreal General Hospital and practiced at Caledonia, Minnesota, for a year before moving to Mabel.

In 1950, the annual picnic and get-together of the Newberg-Preble Farm Bureau was designated Appreciation Day for Dr. Lannin, in celebration of thirty-nine years of practice.

Despite a busy practice, Dr. Lannin devoted considerable time and energy to the civic welfare of Mabel. He served on the school board and was president of the board of directors of the Mabel Telephone Exchange Company.

On June 5, 1912, Dr. Lannin married Fannie Gordinier, who with their two sons, Drs. Donald and Bernard Lannin, both surgeons of Saint Paul, survives him.

EDWARD H. RICHTER

Dr. Edward H. Richter, physician at the State Hospital at Fergus Falls, died August 27, 1952, following a heart attack. He was fifty-eight years of age.

Dr. Richter was born May 13, 1894, at Foreston, Illinois. He grew up in Dell Rapids, South Dakota, and received his M.D. degree from the University of Minnesota in 1922. He practiced medicine in Hunter, North Dakota, from 1923 until 1950, when he moved to Fergus Falls.

Dr. Richter married Alice Hartwell at Pierre, South Dakota, on September 14, 1920. His wife, a daughter Ruth, and a son Paul survive him.

RICHARD E. SCAMMON

Dr. Richard E. Scammon, well known in the field of anatomy and research and former professor of anatomy at the University of Minnesota, died at his home in Brantson, Missouri, on September 12, 1952.

Dr. Scammon was a native of Kansas City and attended the University of Kansas. He earned the degree of Ph.D. in Medical Sciences at Harvard in 1909.

In 1911, he joined the University of Minnesota faculty in the anatomy department. In 1930, he accepted the position of dean of biological science at the University of Chicago where he remained for a year. He then returned to the University of Minnesota as dean of medical sciences. His was an investigative type of mind, and Dr. E. T. Bell is quoted as stating that it was a mistake for Dr. Scammon to let administrative work interfere with his research. He was a born teacher and ambidextrous in illustrating his lectures on the blackboard. While his research in human growth was outstanding, his originality was not limited to anatomy. He it was who worked out a pension system for the faculty of the University. According to Dr. Edward Boyden, now head of the University's department of anatomy, Dr. Scammon was an expert in mathematics, architecture, ecclesiastics and economics, as well as medicine. An entertaining talker, he was the center of attentive groups at medical gatherings. In short, he was that rare type of human being known as genius.

Dr. Scammon is survived by his wife, Julia, a son Richard M. and a daughter Jean. He was sixty-nine years of age at his death.

The God who gave us life gave us liberty at the same time.—Thomas Jefferson.

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Of General Interest

Dr. Troy Rollins held open house September 14 in a new clinic building in Elmore. Dr. Rollins' new office has a reception room, record office, laboratory, two examining rooms, x-ray and darkroom, consultation rooms and extras such as utility, storage rooms and toilets.

* * *

Dr. James M. Thompson began practice in Austin in September. Dr. Thompson formerly practiced at Brownsdale and just recently completed graduate study in gynecology and obstetrics at the University of Chicago.

* * *

Dr. John Rutledge, Detroit Lakes, accepted an appointment as resident in surgery at St. Luke's Hospital in Fargo.

* * *

Dr. Philip T. Bland of Wittenberg began practice in Westby in September.

* * *

Dr. Bruce Boynton left his practice in Ada, September 5, to go to Grafton, North Dakota. Dr. Boynton had practiced in Ada since the end of World War II.

* * *

Dr. O. H. Johnson, who has practiced in Redwood Falls since 1931, left to accept a fellowship in psychiatry and neurology at the University of Nebraska. **Dr. A. W. Diessner** of Waconia will take over Dr. Johnson's practice on September 8.

* * *

Drs. John Moe, R. W. Koucky, L. A. Stelter of Minneapolis; **John Doucky** of Chicago, and **A. H. Borgerson** of Long Prairie, left September 9 for a fishing trip in Alaska. They plan to fly by pontoon-equipped plane to various areas in Alaska for game hunting and motion picture taking.

* * *

Dr. S. Marx White, Minneapolis, was awarded the St. Barnabas Bowl, an achievement award giving recognition to the greatest medical contribution to the community. A year ago, Dr. White received the annual distinguished service award of the Community Chest and Council.

* * *

Dr. Marie Bepko Puumala left Cloquet August 26, to attend a meeting of the Medical Women's International Association in Vichy, France, September 14-16.

* * *

Dr. John Eiler of Park Rapids was elected to an associate membership in the International College of Surgeons at the meeting of the executive council on August 11.

* * *

Dr. John R. McDonald, surgical pathology at the Mayo Clinic, left August 24 for South America where he will give lectures to medical groups in Quito, Ecuador, Santiago, Brazil, and Chile. Dr. and Mrs. McDonald will also do some sight-seeing on their month and a half trip.

* * *

Dr. Robb Rutledge of Detroit Lakes, now a flight surgeon in the United States Air Force, left September 2 for England where he will be stationed for several months.

* * *

Dr. G. N. Rysgaard joined the staff of the Northfield Hospital, September 9. Dr. Rysgaard will be associated with **Drs. Stanley Kucera, L. B. Kucera, A. M. Nielsen, R. F. Mears, Donald H. Peterson, Bernard Street, and W. E. Wilson.**

* * *

A refresher course for medical laboratory technicians in the Mankato area was begun September 16, and will run until November 11. **Dr. A. G. Liedloff,** director of District 2, Minnesota Department of Health, helped organize the course which is being sponsored by the Minnesota Hospital Association, State Medical Association, Society of Clinical Pathologists, Society of Medical Technologists, the University of Minnesota and the Minnesota Department of Health.

* * *

Dr. Norman Sterrie, Minneapolis, has joined the staff of the Worthington Clinic. Dr. Sterrie recently completed graduate work in pediatrics at the University of Minnesota.

* * *

A research fund of $25,000 was contributed toward beginning a research laboratory at Minneapolis General Hospital by Archie D. Walker and his son, **Dr. S. A. Walker. Dr. A. A. Zierold** is president of the board of directors of the Minneapolis General Hospital Foundation, Inc. **Dr. Daniel J. Moos,** Dr. Walker and his father are members of the board. Dr. Zierold will be responsible for clearing individual projects.

* * *

A building permit was issued to **Dr. P. F. Meyer** of Faribault for a clinic at an estimated cost of $25 000.

* * *

Dr. Maurice Weisberg returned recently from Canada where he and his wife attended a testimonial dinner in honor of Justice Samuel E. Freedman, who was elevated to the court of the Queen's bench for the province of Manitoba.

* * *

Dr. Robert M. Watson, recently discharged from the United States Army, has joined his father-in-

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law, **Dr. A. I. Arneson,** in practice at Morris. Dr. Watson served with the Army in 1945 and until he was again recalled to military service in 1951, he practiced as a member of the Bratrud Clinic in Thief River Falls.

* * *

Dr. Francis J. Schatz of Saint Cloud was recently honored at a reception celebrating his "knighthood" of the Order of St. Gregory the Great. "Knighthood" is given in recognition of distinguished service for the church, society and the Holy See. Dr. Schatz has practiced in Saint Cloud for forty-two years. **Dr. Roger Kennedy,** pediatrician at the Mayo Clinic and president of the Minnesota Medical Association, was a guest speaker at the ceremony. Dr. Kennedy has been similarly honored by the Pope.

* * *

Dr. Kristofer Hagen, recently returned from India where he was a medical missionary, has begun practice with **Dr. Theodore Greenfield** at the Cokato Hospital.

* * *

Dr. Andrew A. Gage of Buffalo, New York, began practice in Maynard on October 1. Dr. Gage is associated with **Dr. Herbert A. Hartfiel** of Montevideo who has branch offices in Maynard and Boyd.

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Lieutenant Commander Carrie E. Chapman, USNR a former fellow in the Mayo Foundation, returned recently from London where she attended the International Congress of Physical Medicine at Kings College. Dr. Chapman is now serving with the United States Navy at the Oakland Naval Hospital, Oakland, California.

* * *

The Sixth Annual Minnesota Public Health Conference was held in Saint Paul on October 2 and 3. Participating in the program were: **Dr. Viktor O. Wilson,** Rochester public health officer; **Dr. Charles Sheard,** Rochester; **Dr. Mary Giffin** of the Mayo Clinic; and **Dr. Charles G. Sheppard,** Hutchinson, president of the State Public Health Conference.

* * *

Dr. A. B. Nietfield, who has been practicing at Warren, joined the Sauk Center Clinic on September 1.

* * *

Dr. Sorin Safirescu, a resident at Fairview Hospital, Minneapolis, was married September 1, to Patricia Gallagher, daughter of Minnesota Supreme Court Justice Frank T. Gallagher and Mrs. Gallagher. Dr. Safirescu was born in Rumania and attended medical school at the University of Bologna, Italy. He was at the Alexian Brothers Hospital in Chicago for a year before coming to Fairview Hospital.

* * *

Dr. Fred Schnell joined the staff of the Litchfield Clinic on September 1. He replaced **Dr. W. A. Chadbourne** who left the clinic to enter the Pathology Department at the University of Minnesota and Veterans Hospital. Dr. Schnell has been practicing at the East Range Clinic in Virginia, Minnesota.

* * *

Dr. C. G. Sheppard of Hutchisnon spoke at the second of a series of regional health meetings authorized by President Truman, September 2, in Minneapolis. Dr. Sheppard is president of the Minnesota Public Health Conference and spoke on Minnesota's handling of health problems and gave reasons for the Conference's opposition to a compulsory health measure on a federal level.

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Dr. Mario M. Fischer, Duluth, acting director of District 4 office of the Minnesota Department of Health, and Dr. H. R. Irwin, pathologist at Hibbing General Hospital, assisted Sister M. Assumpta, R.N., administrator of Hibbing General Hospital, in planning a refresher course for medical laboratory technicians in the Hibbing and Duluth area. The course will be given on Wednesday evenings, starting September 17 and ending November 12.

* * *

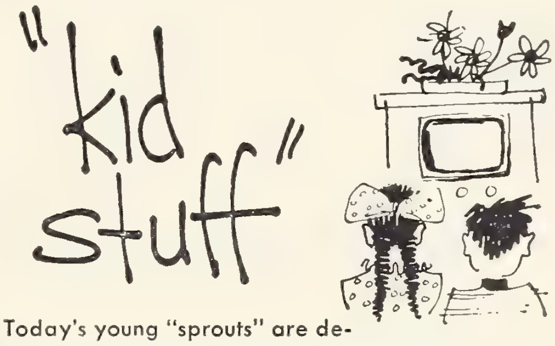
Dr. Reno W. Backus, Director, Mobile Surveys, Nopeming Sanatorium, in co-operation with the Virginia Health Council, the Tuberculosis Health Association, and Nopeming Sanatorium, is conducting a "Pilot Study," in Virginia. The study, which will include the x-raying of specific groups, began September 18 and will help determine the practicability of another mass chest and x-ray survey.

* * *

Dr. William C. MacCarty, retiring member of the Mayo Clinic staff, was elected an international representative-at-large of the United States chapter of the International College of Surgeons, at a meeting in Chicago in September.

* * *

Drs. M. O. Oppegaard and **C. G .Uhley,** with their families, left Crookston, September 5, for an extended vacation trip through New England and the Atlantic states. Dr. Oppegaard and Dr. Uhley will attend a meeting of the American College of Surgeons in New York, September 22-25.



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Dr. Wesley Spink, professor of medicine at the University of Minnesota medical school, has gone to Spain to advise the government on methods for eradicating brucellosis from the livestock in that country where the disease is causing heavy losses. Dr. Spink is director of the Brucellosis Research Center of the World Health Organization. While in Europe, Dr. Spink will also visit France, Italy and Great Britain. Before returning to the United States he will attend a conference on antibiotic research in England.

* * *

Dr. Irving C. Bernstein of Minneapolis received a Master of Science degree in psychiatry from the University of Colorado. In June, Dr. Bernstein was certified in psychiatry by the American Board of Psychiatry and Neurology.

* * *

Dr. Eugene L. Bauer, of Saint Paul, will attend a postgraduate course in Bronchoesophagology in Chicago from October 20 to November 1.

* * *

Dr. Willard Peterson of Spring Valley was admitted to Saint Mary's Hospital in Rochester with poliomyelitis on August 28.

* * *

Dr. Daniel Lovelace began practice in Mountain Lake in late August. Dr. Lovelace will be associated with **Drs. H. R. Basinger, E. S. Schutz** of Mountain Lake and **Dr. H. P. Basinger** of Windom in the Basinger Clinic. Dr. Lovelace has been practicing in Rapid City, South Dakota, since his discharge from the army.

* * *

Dr. A. Cabot Wohlrabe, Minneapolis, was among those certified by the American Board of Internal Medicine early in the summer. Dr. Wohlrabe is associated with his father, Dr. Arthur A. Wohlrabe, in the practice of internal medicine with offices at 323 LaSalle Medical Building, Minneapolis.

* * *

Dr. J. S. Blumenthal has just returned from a two months' visit to Europe, where he visited England, Belgium, Switzerland, Italy and France. Dr. Blumenthal

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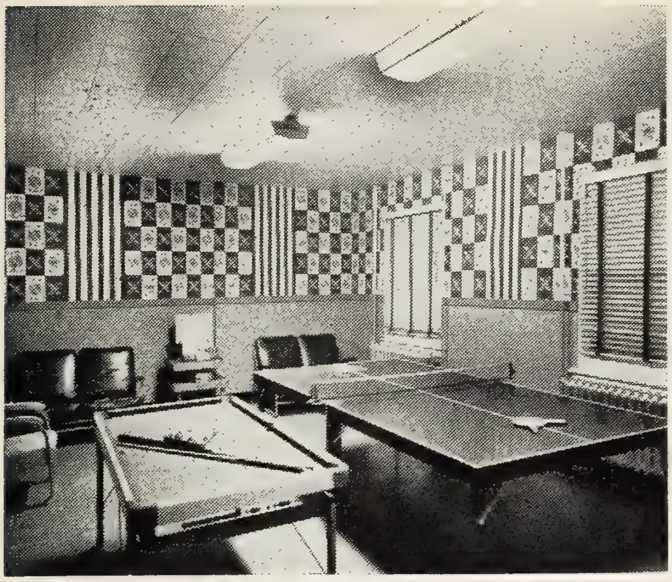

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visited allergy clinics in London, Rome, and Paris. He was accompanied by his family.

* * *

Dr. Harry M. Weber of Rochester, Minnesota, is the new president-elect of the American Roentgen Ray Society. He will succeed Dr. Charles L. Martin of Dallas, Texas, in 1952.

* * *

Dr. Fred W. Rankin of Lexington, Kentucky, formerly associated with the Mayo Clinic, is the new president-elect of the American College of Surgeons as a result of the election held at New York in September.

BLUE CROSS-BLUE SHIELD NEWS

Blue Shield

On October 1, Minnesota Blue Shield's increased and revised Schedule of Payments went into effect. Also effective on the same date was the revised contract providing additional benefits. And all of these increased allowances or benefits have been approved and put into effect by the Board of Directors without any simultaneous or anticipated increase of the premium.

As these changes became effective, Minnesota Blue Shield had increased its benefits or fees four times during the first five years of its existence. On August 1, 1949, the appendectomy fee was raised from $75 to $100 and emergency medical care fees were added. On January 9, 1951, the policy of paying for surgical procedures

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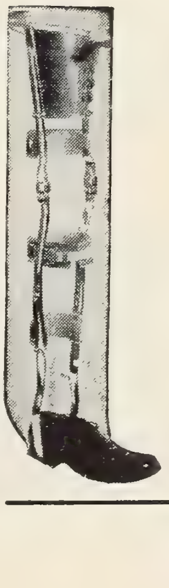

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in the office treatment of surgical wounds and also as many as three subsequent surgical office calls represented a distinct increase in the Blue Shield allowances. And on May 1, 1951, the tonsillectomy fee for children under thirteen years of age was increased from $25 to $30. With the eighty-one fee increases now effective, this represents as rapid a rate of benefit increase as has been found in any Blue Shield plan in the country.

Among some of the more important present benefit increases are: (1) twenty-seven surgical operations, the fees for which have been increased $50, raising them from $150 to $200, (2) addition of sixteen new items never before listed in the Schedule of Payments, (3) increase of in-hospital medical care from twenty-one to thirty days per illness during any twelve consecutive months, and (4) increases in the fees for emergency medical care for conditions hazardous to the subscriber's life. In addition to these, approximately fifty other operations or surgical procedures have higher fees than were paid under the old Schedule of Payments.

These benefit increases have been approved by the Board of Directors in spite of possible financial hazards associated with some of them. To avoid difficulties and to keep the road ahead clear for any future increases, the help of every member of the medical profession in avoiding abuses of the new Schedule of Payments is a vital necessity. With these changes, Minnesota's Blue Shield program becomes one of the most liberal of all the seventy-eight plans in existence. In this sense, it merits the profession's pride and deserves the cooperation of every physician.

Previous experience has indicated that the transition from one Schedule of Payments to another often requires double claims processing, leads to payment of allowances according to the wrong Schedule of Payments, and involves misunderstandings or disturbed physician and subscriber relationships. All of these can be avoided by filing all claims for services rendered prior to October 1, just as soon as possible after completion of the service.

These benefits or fee changes actually represent a colossal undertaking for the benefit of the subscribers primarily and the doctors who provide the service secondarily. Their effectiveness and the program's success are dependent upon the support and cooperation of the medical profession.

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ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, two weeks, starting October 6, October 20, November 3
Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting October 20
Surgical Anatomy and Clinical Surgery, two weeks, starting November 3
Surgery of Colon and Rectum, one week, starting October 20, November 17.
Gallbladder Surgery, ten hours, starting October 20.
Bronchoscopy, one week, by appointment.
General Surgery, one week, starting October 6.
General Surgery, two weeks, starting October 6.
Breast and Thyroid Surgery, one week, starting October 6.
Esophageal Surgery, one week, starting October 13.
Thoracic Surgery, one week, starting October 20.
Fractures and Traumatic Surgery, two weeks, starting October 6.
GYNECOLOGY—Intensive Course, two weeks, starting October 20.
Vaginal Approach to Pelvic Surgery, one week, starting November 3.
OBSTETRICS—Intensive Course, two weeks, starting September 29, November 3.
MEDICINE—Intensive General Course, two weeks, starting October 13.
Gastroenterology, two weeks, starting October 27.
Gastroscopy and Gastroenterology, two weeks, starting November 3.
CYSTOSCOPY—Ten-day Practical Course starting every two weeks.
DERMATOLOGY—Intensive Course, two weeks, starting October 13.

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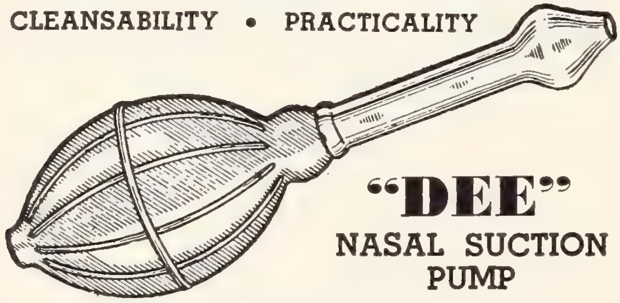

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Non-Group Enrollment Campaign Nears Close

As the sixth Minnesota Blue Cross-Blue Shield non-group enrollment campaign nears it close, inquiries are being received at an encouraging rate from all sections of Minnesota. However, doctors and hospital management factors are reminded again of the important role they can play in the mutual aim to bring voluntary prepaid hospital-medical and surgical care within the reach of every Minnesotan. Without utmost support and enthusiasm no amount of public relations effort can affect the substantially increased non-group enrollment needed to justify the most intensive campaign we have ever conducted.

Through daily contact with the public, doctors and hospitals are in a position to reach potential non-group subscribers at the grass roots level; and full co-operation in supplying patients and visitors with literature, applications and full information will go far to assure a successful enrollment.

Throughout the lengthened eight-week enrollment period, which commenced September 9 and continues through October 31, the enrollment campaign has the additional support of the powerful medium of television.

A new half-hour Blue Cross-Blue Shield television program over WCCO-TV (channel 4) is being broadcast every Tuesday night at 9:30 p.m. The program arranged in co-operation with the University of Minnesota is called "The Golden Gopher Cavalcade," and it

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features outstanding University of Minnesota football classics through the years from 1932 to the present, narrated in play-by-play fashion by the popular sportscaster Rollie Johnson. This timely presentation has already demonstrated universal public appeal, and is building greatly increased interest in Blue Cross and Blue Shield enrollment throughout the fifteen county television area in and surrounding the Twin Cities.

WCCO-CBS radio continues to reach out to the public on a state-wide basis, with four, fifteen-minute broadcasts per week on Tuesday and Thursday nights at 6:30 p.m., on Saturday night at 10:00 p.m., and on Sunday night at 7:00 p.m. In addition, during the latter half of the non-group campaign in October, newspaper messages are appearing in the *Minneapolis Star-Tribune, St. Paul Dispatch-Pioneer Press, Duluth Herald News-Tribune* and twenty-four out-state dailies.

To date, the new $25 deductible Blue Cross non-group contract with its more comprehensive benefits is enjoying gratifying public acceptance as is the new non-group Blue Shield contract, which offers increases in the schedule of payments, number of days care and other added benefits *to become effective on and after October 1, 1952.*

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

BRAIN SURGEON. The Autobiography of William Sharpe, M.D. Director of Neurosurgery, Manhattan General Hospital, New York; Consultant in Neurosurgery, Gouverneur Hospital, Jamaica City Hospital, Nassau Hospital (Mineola, N. Y.), Vassar Brothers Hospital, Poughkeepsie, Monmouth Memorial Hospital, Long Branch, and Ann May Hospital, Spring Lake, et cetera. 271 pages. Price $3.75, cloth. New York: The Viking Press, 1952.

RHEUMATIC FEVER. A Symposium Held at the University of Minnesota on November 29, 30 and December 1, 1951, under the Sponsorship of the Minnesota Heart Association. Lewis Thomas, M.D., Editor. 349 pages. Illus. Price $10.00, cloth. Minneapolis: University of Minnesota Press, 1952.

VIRAL AND RICKETTSIAL INFECTIONS OF MAN. Second Edition. Thomas M. Rivers, M.D., Editor. Director of the Hospital, the Rockefeller Institute for Medical Research. 719 pages. Illus. Price $7.50, cloth. Philadelphia: J. B. Lippincott Co., 1952.

ESSENTIALS OF DERMATOLOGY. Fourth Edition. Norman Tobias, M.D. Associate Clinical Professor of Dermatology, St. Louis University; Assistant Dermatologist Firmin Desloge and St. Mary's Hospitals; Visiting Dermatologist St. Louis State Hospital; Fellow, American Academy of Dermatology and Syphilology; Diplomate, American Board of Dermatology and Syphilology; Visiting Physician in the Department of Dermatology at the St. Louis City Hospital. 596 pages. Illus. Price $6.00 cloth. Philadelphia: J. B. Lippincott Co., 1952.

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CARDIAC THERAPY. Harold J. Stewart, M.D. Associate Professor of Medicine, Cornell University Medical College, New York; Attending Physician, New York Hospital; Head of Division of Cardiology, Department of Medicine, New York Hospital-Cornell Medical Center. 622 pages. Illus. Price $10.00, cloth. New York: Paul B. Hoeber, Inc., 1952.

PHYSICIAN'S HANDBOOK. Seventh Edition. Marcus A. Krupp, M.D. Assistant Clinical Professor of Medicine, Standford University School of Medicine and Director of Palo Alto Medical Research Foundation; Norman J. Sweet, M.D., Assistant Professor of Medicine, University of California School of Medicine, San Francisco; Ernest Jawetz, Ph.D., M.D., Associate Professor of Bacteriology and Lecturer in Medicine and Pediatrics, University of California School of Medicine, San Francisco; and Charles D. Armstrong, M.D., Clinical Instructor in Medicine, Stanford University School of Medicine. 380 pages. Illus. Price $2.50, flexible cover. Los Altos, California: University Medical Publishers, 1952.

The seventh edition of this useful little handbook has now appeared. It is a compact, ready-reference, pocket-sized book which wastes not an inch of space. Even the insides of the covers are utilized for tables and their edges are marked off in inches and centimeters so that they may be used for measuring.

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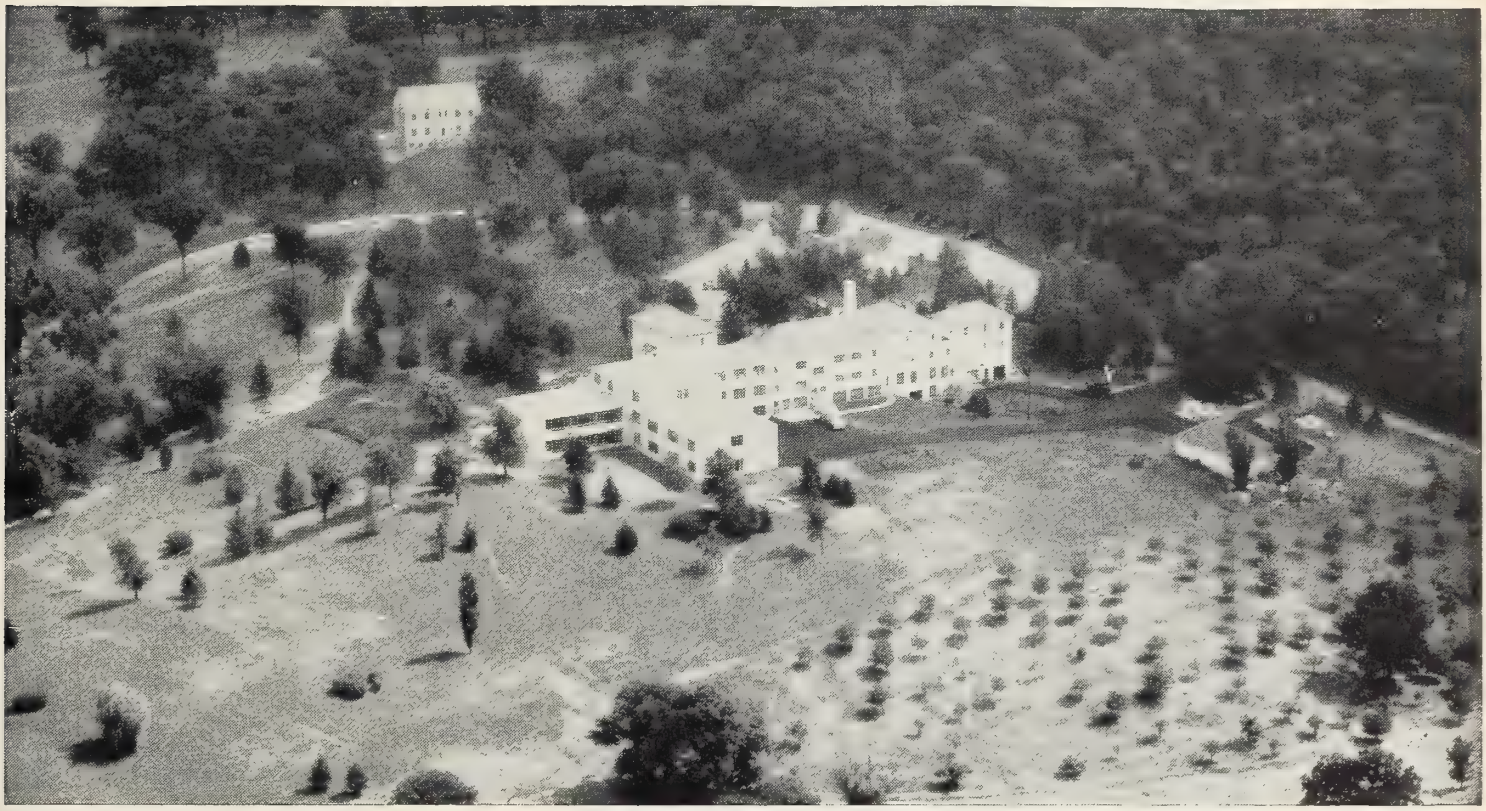

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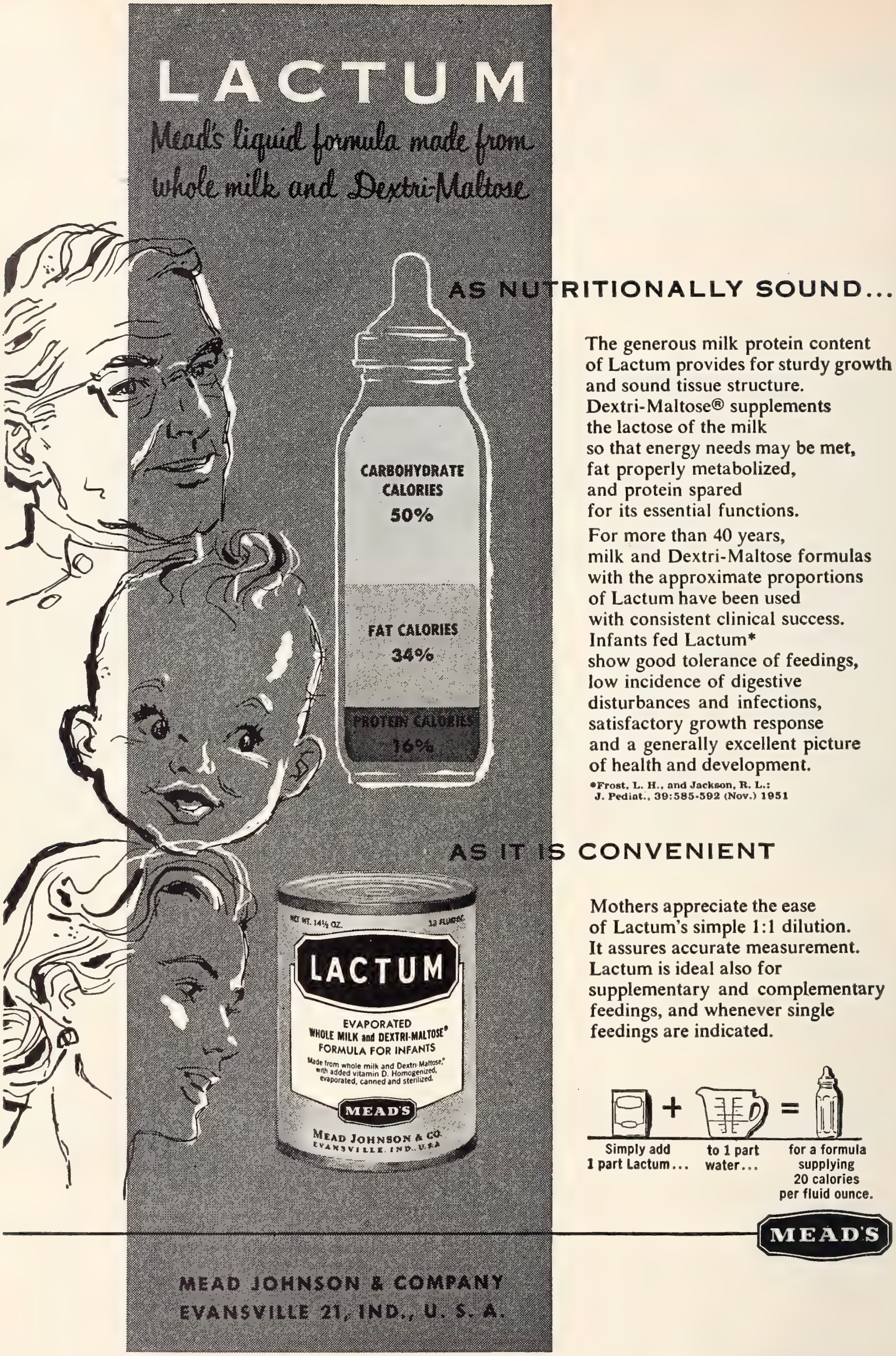
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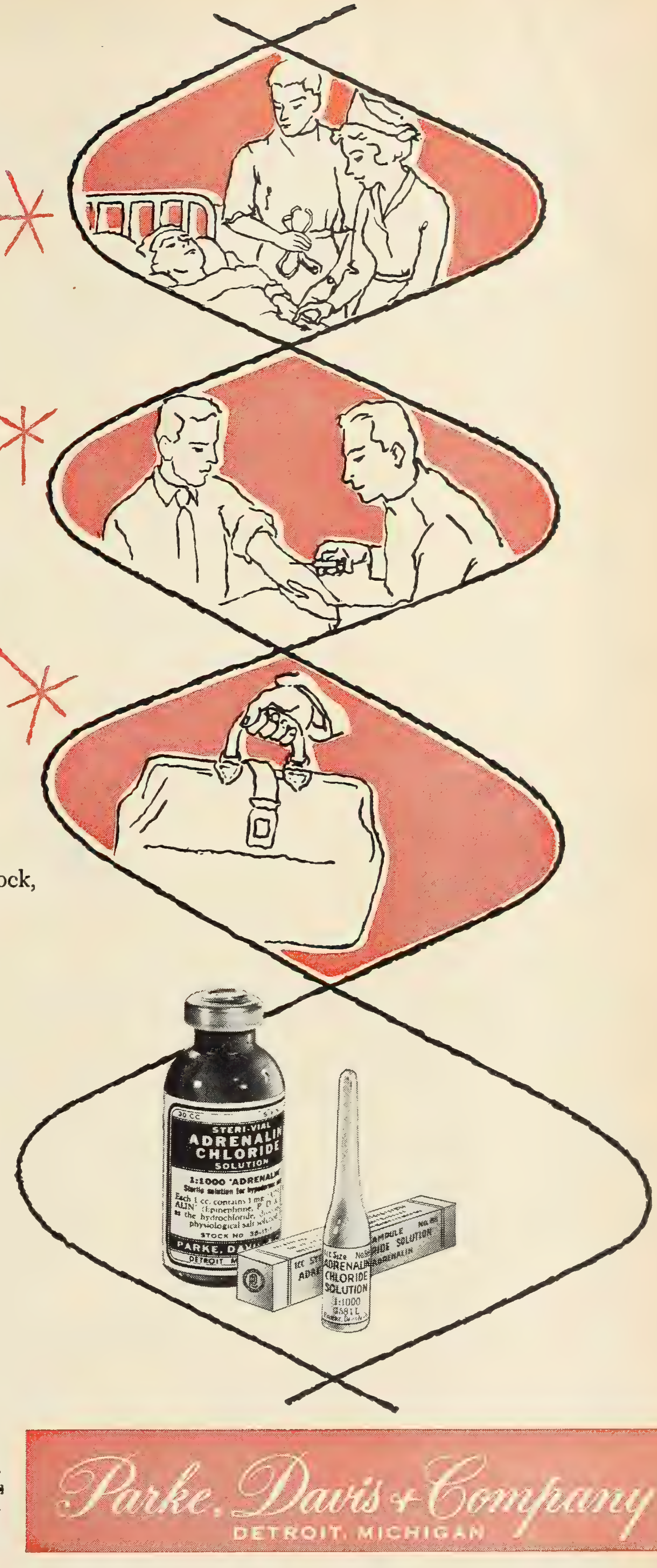
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Volume 35 **November, 1952** **Number 11**

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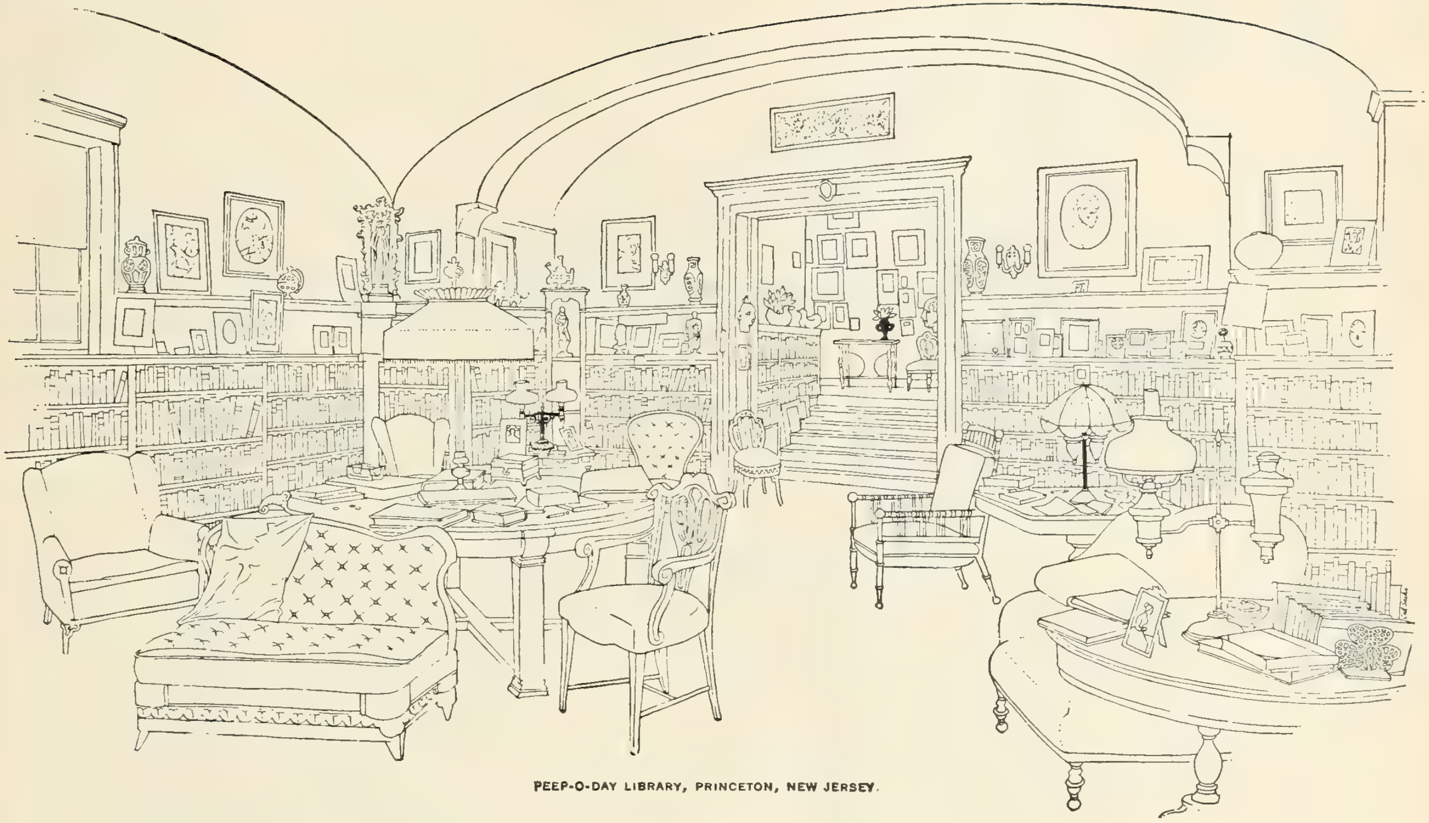

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Among the nutritional needs of patients with chronic ulcerative colitis is protein.[4] For such patients a recommended diet includes 4 ounces of tender meat with luncheon and with dinner.[5a]

In diabetes mellitus, maintenance of protein reserves is important for supporting well-being and vigor, for maintaining resistance to infection, and, in conjunction with good general management, for minimizing many of the degenerative changes commonly seen in this condition.[6,7] One ounce of bacon at breakfast and 2½ ounces of cooked meat at each of the other two meals are valuable in a diabetic diet.[5b]

A program of treatment[8] found useful in atherosclerosis of the coronary vessels includes an adequate diet low in fat (20-25 Gm. daily) and normal or moderately high in protein (60-100 Gm. daily), in conjunction with lipotropic agents. A sample menu of this diet lists 2 ounces of lean meat at both the noon and evening meals.

Underweight or average weight patients with persistent low blood sugar levels are benefited by a high protein diet providing meat two or three times a day.[9] In overweight patients of this type, lean meat is served at luncheon and at dinner.

During convalescence from infectious disease, the importance of "high protein-high calorie" diets including generous servings of meat deserves emphasis.[10] For this purpose, a suggested typical daily menu schedule which results in weight gain, improved vigor, and a restored sense of well-being furnishes ½ ounce of bacon at breakfast and 3 ounces of meat at each of the other meals. Supplementary feedings may include additional amounts of meat.

---

1. Lewis, H. B.: Proteins in Nutrition, in Handbook of Nutrition, American Medical Association, ed. 2, Philadelphia, The Blakiston Company, 1951, p. 1.
2. Patek, A. J., Jr.: Evaluation of Dietary Factors in Treatment of Laennec's Cirrhosis of Liver, J. Mt. Sinai Hosp. *14:*1 (May-June) 1947.
3. Portis, S. A., and Weinberg, S.: Recent Advances in the Medical Treatment of Cirrhosis of the Liver, J.A.M.A. *149:*1265 (Aug. 2) 1952.
4. Welch, C. S.; Adams, M., and Wakefield, E. G.: Metabolic Studies on Chronic Ulcerative Colitis, J. Clin. Investigation *16:*161 (Jan.) 1937.
5. (a) Mayo Clinic Diet Manual, Philadelphia, W. B. Saunders Company, 1949, p. 89.
   (b) Ibid., p. 133.
6. Mosenthal, H. O.: Management of Diabetes Mellitus, An Analysis of Present-Day Methods of Treatment, Ann. Int. Med. *29:*79 (July) 1948.
7. McLester, J. S.: Nutrition and Diet in Health and Disease, ed. 5, Philadelphia, W. B. Saunders Company, 1949, p. 364.
8. Morrison, L. M.: Arteriosclerosis: Recent Advances in the Dietary and Medical Treatment, J.A.M.A. *145:*1232 (Apr. 21) 1951.
9. Low Blood Sugar Level; Queries and Minor Notes, J.A.M.A. *149:*1358 (Aug. 2) 1952.
10. Goodman, J. I., and Garvin, R. O.: Results of High Calorie Feeding, Gastroenterology *6:*537 (June) 1946.

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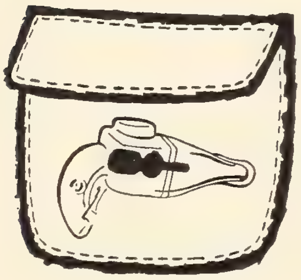

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1. Kaufman, R., and Farmer, L. (1951), Norisodrine by Aerohalor in Asthma, Ann. Allergy, 9:89, January-February.
2. Swartz, H. (1950), Norisodrine Sulphate (25 Per Cent) Dust Inhalation in Severe Asthma, Ann. Allergy, 8:488, July-August.
3. Krasno, L., Grossman, M., and Ivy, A. (1949), The Inhalation of 1-(3′,4′-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March.

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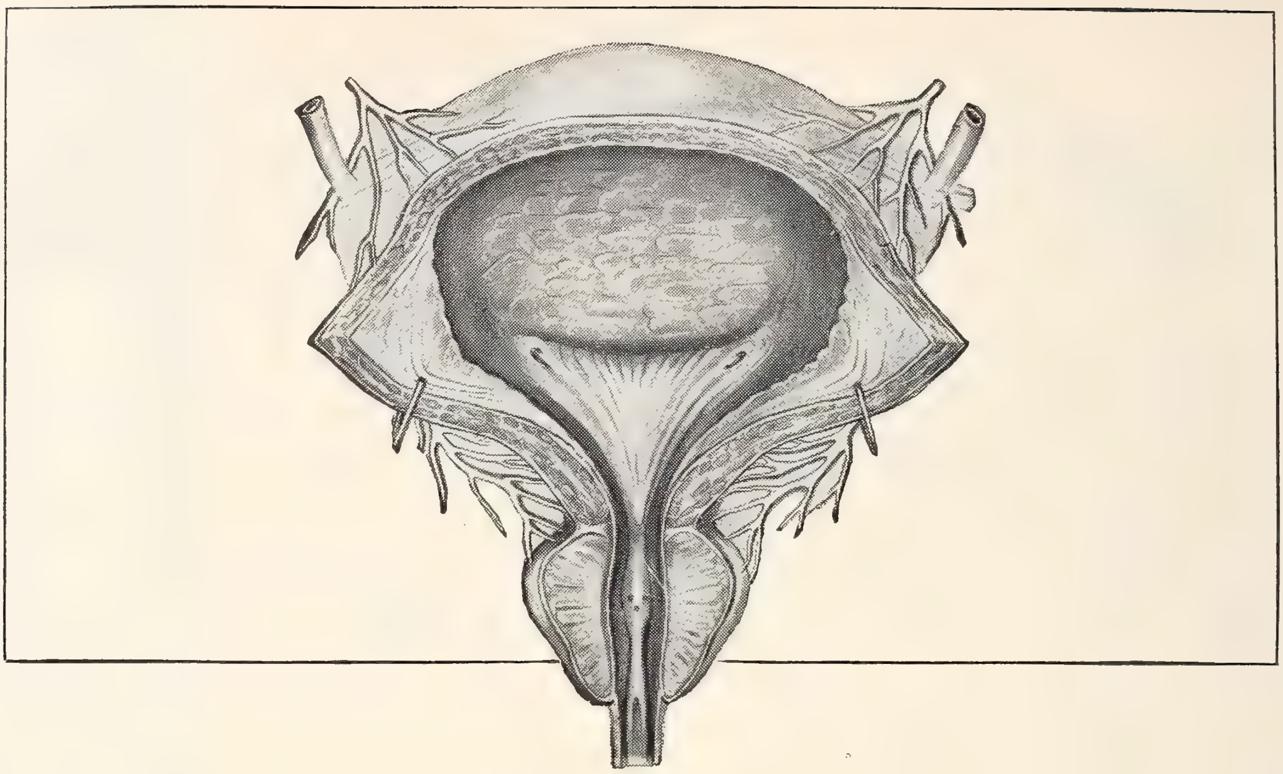

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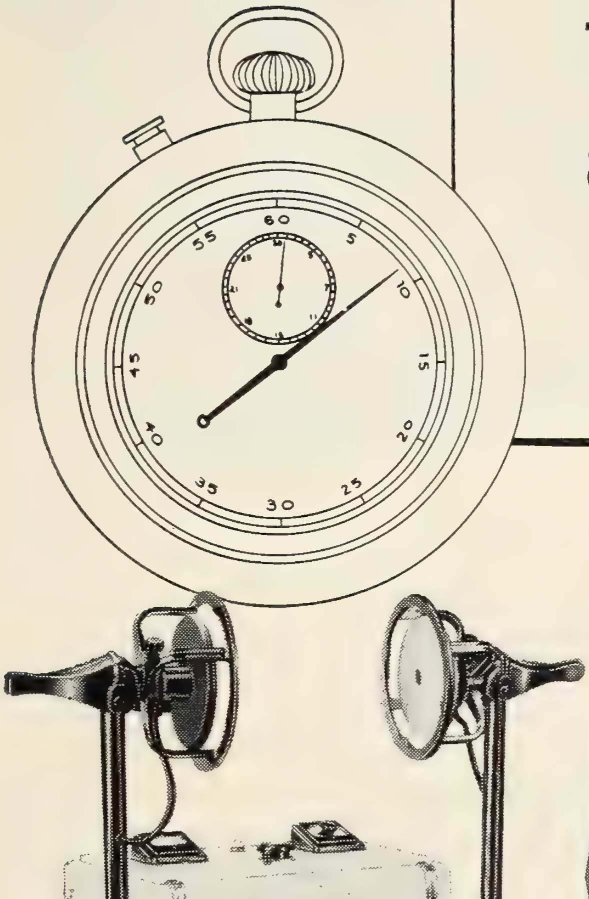

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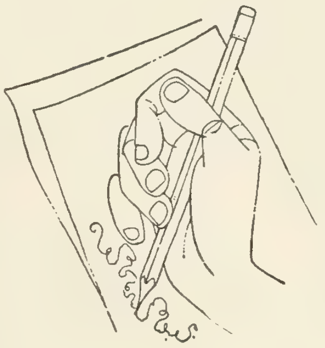
in muscle spasm of rheumatic disorders

in acute alcoholism



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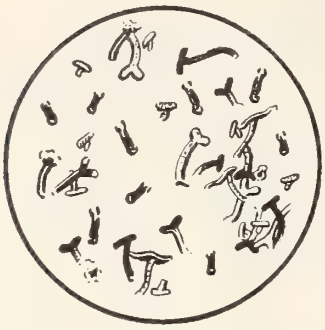
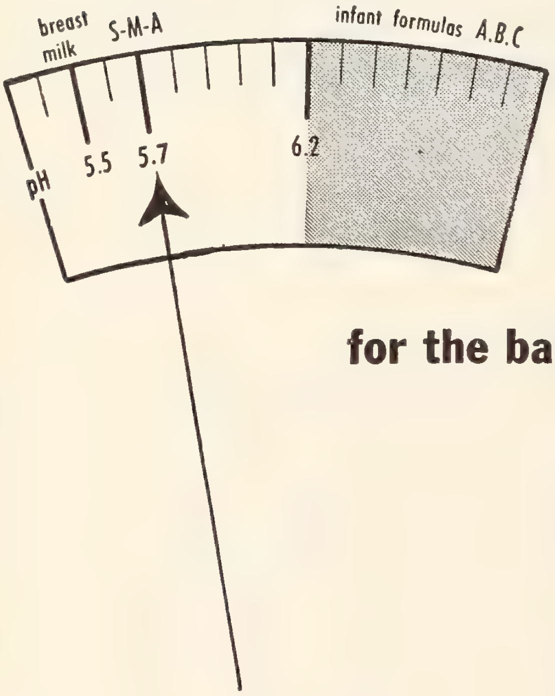


- establishes a predominantly gram-positive flora—similar to the flora of the lower intestine of the breast-fed baby.[1]



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REFERENCES

1. Barbero, G.J., Runge, G., Fischer, D., Crawford, M.N., Torres, F. E., and Gyorgy, P.: J. Pediat. *40*:152 (Feb.) 1952.
2. Lichtman, H., Ginsberg, V., and Watson, J.: Proc. Soc. Exp. Biol. and Med. *74*:884 (Aug.) 1950.
3. Torres, F.E., Romans, I.B., and Wheller, J.B.: A Study of Infantile Diaper Rash. To be published.

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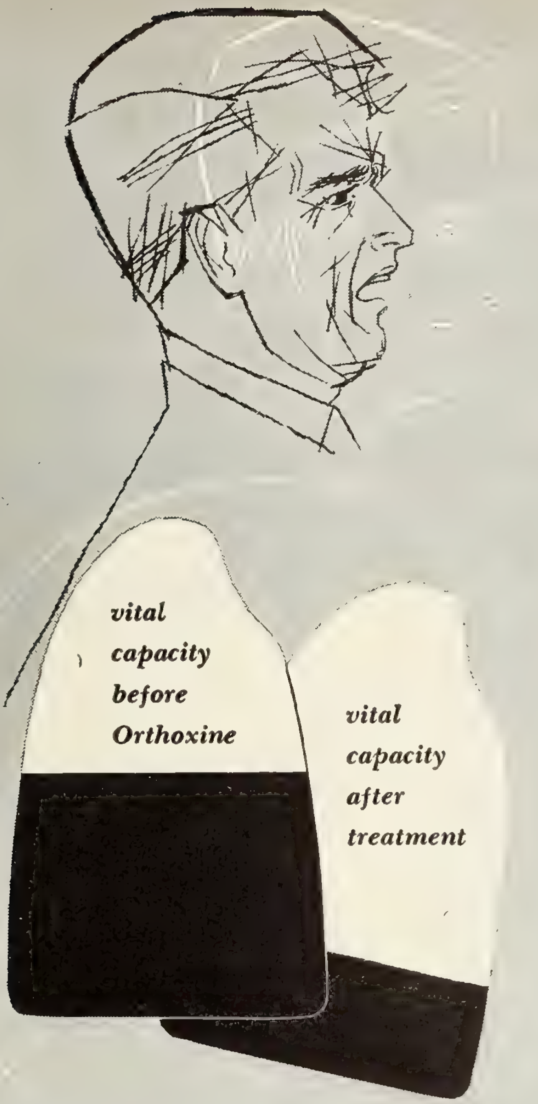
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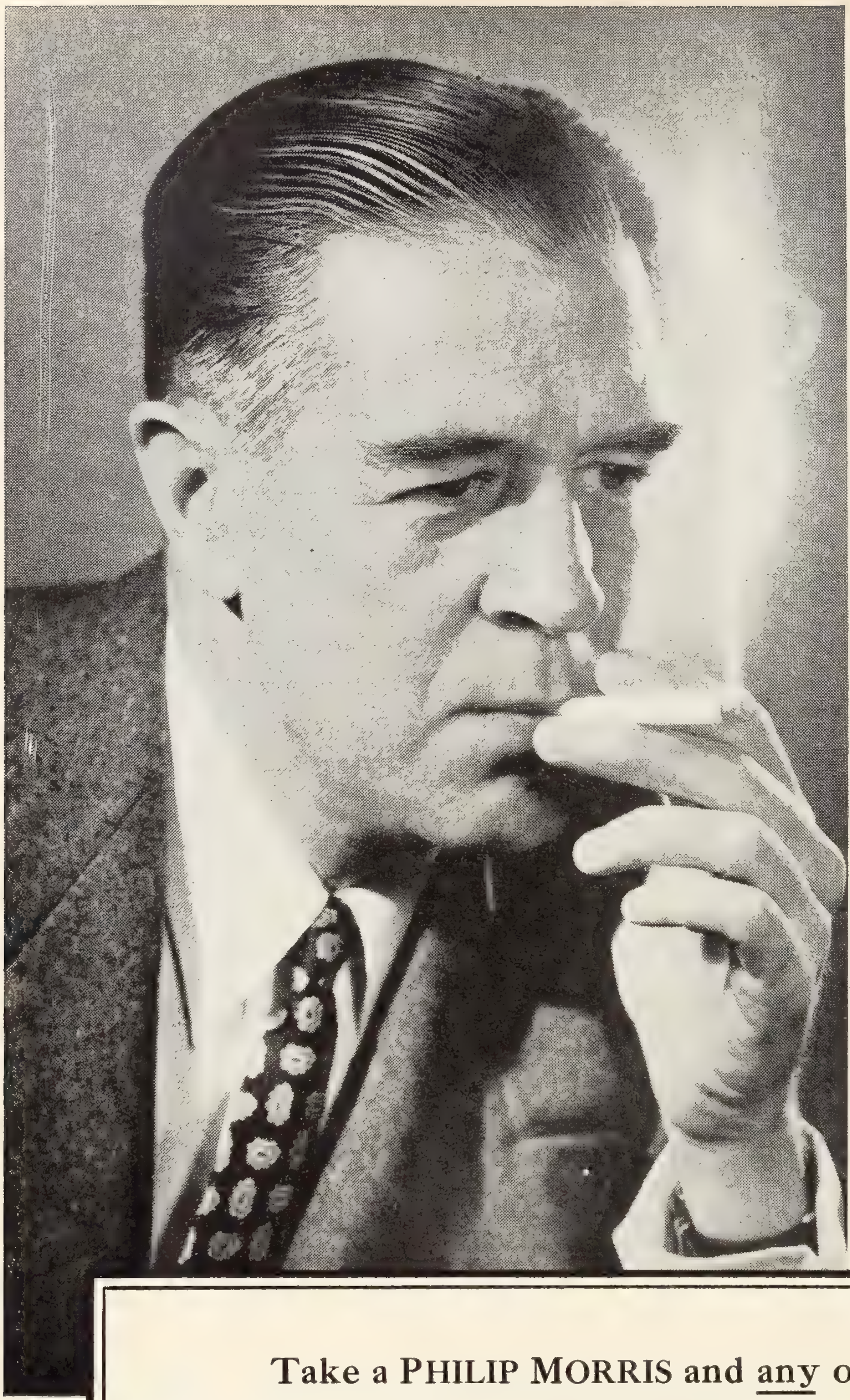

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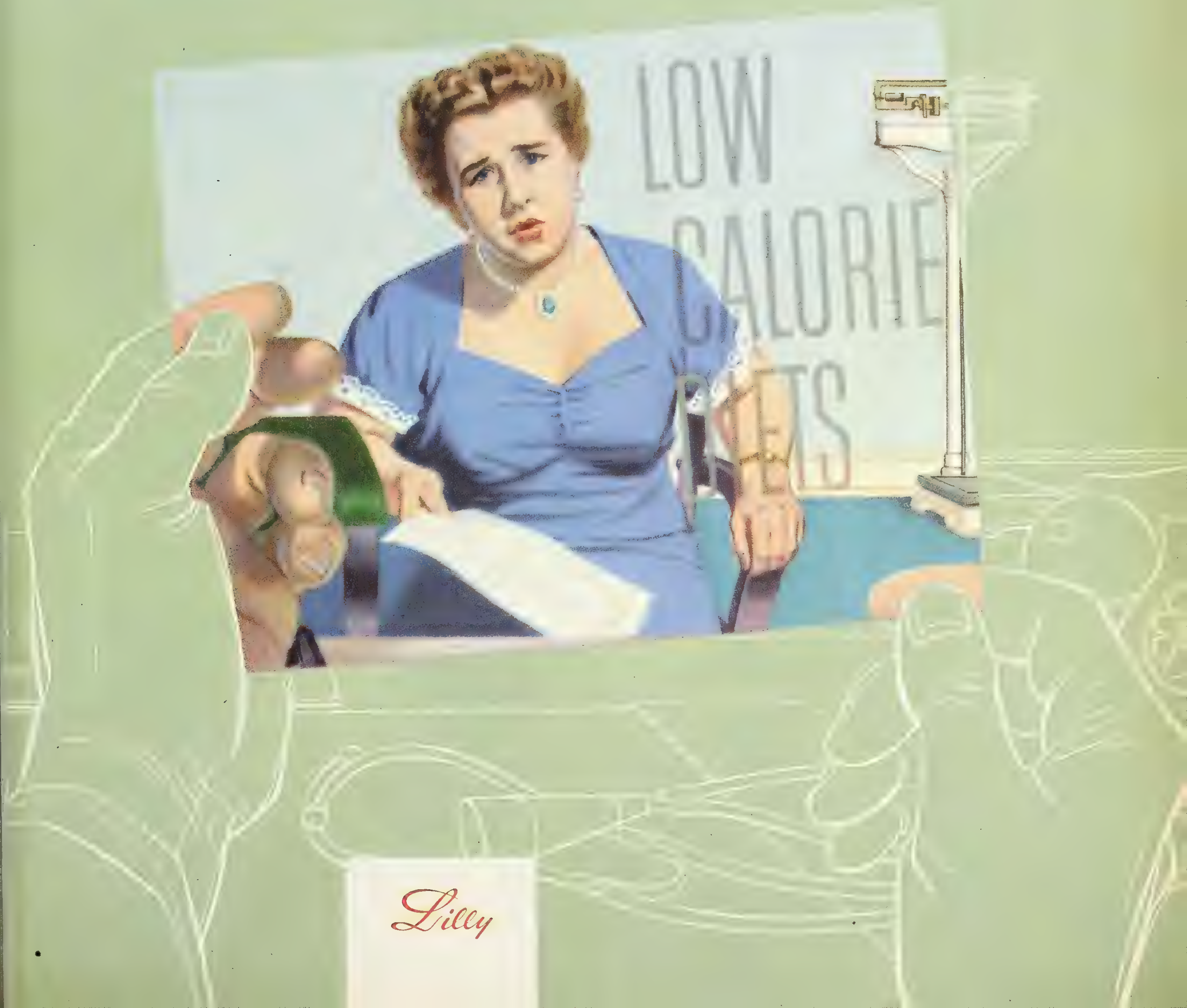

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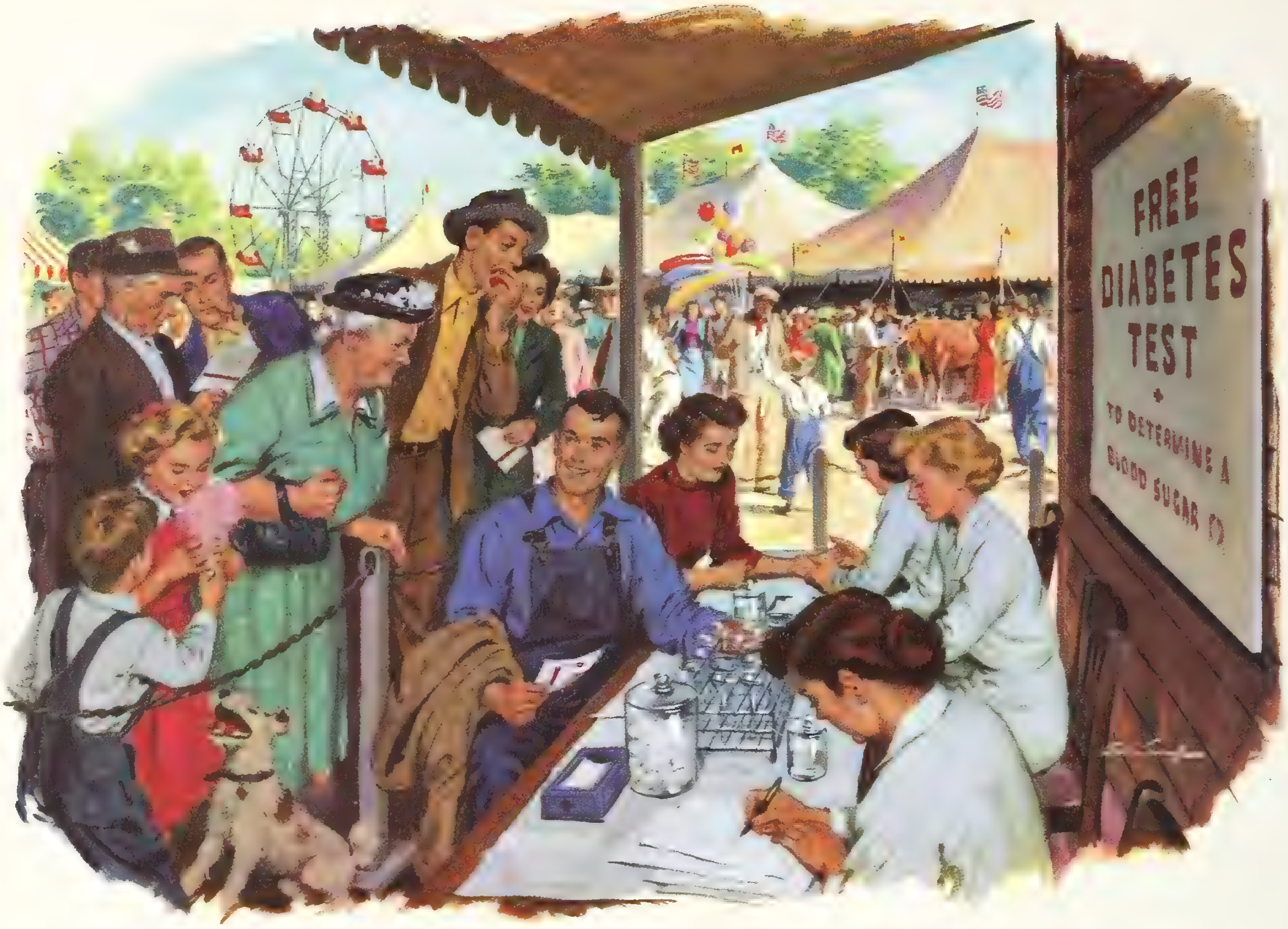

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 November, 1952 Number 11

MODERN TRENDS IN THE TREATMENT OF GOITER

JAMES J. COLL, M.D.
Duluth, Minnesota

THIS BRIEF presentation represents a survey, necessarily personalized, of current thinking on the subject.

Primary Hyperthyroidism (Exophthalmic Goiter, Graves' Disease)

The fundamental defect in this disorder remains undetermined. The wise physician will make those personal and environmental readjustments that seem indicated while directing the course and follow-up of therapy aimed at the thyroid gland. He realizes that while present-day therapy is successful, thyroid dysfunction is probably not the primary defect and that a definite recurrence rate exists. The longer any large series is followed the greater will be the incidence of recurrence.

The last ten years have witnessed the introduction of two new means of therapy—radio-active iodine and anti-thyroid drugs. Control can now be achieved by: (1) medical management with radio-active iodine; (2) medical management with anti-thyroid drugs; (3) subtotal thyroidectomy after preoperative preparation with anti-thyroid drugs, iodine and an adequate program of diet and rest.

Radio-active iodine seems, after a ten-year follow-up, to induce a remission of the same type and permanence and in the same percentage of patients with exophthalmic goiter as does subtotal thyroidectomy.[12] It has the following additional advantages:

1. It can be given in a drink of water.
2. The discomfort and expense of operation are obviated.
3. The prolonged use of medicine is not necessary.
4. The two major complications of thyroidectomy—parathyroid tetany and vocal cord paralysis—are avoided.

At the present time two distinct disadvantages restrict its use: (1) the possible hazard of late carcinogenesis and around this revolve all the disadvantages inherent in the unknown; (2) the expense of the apparatus and the personnel necessary for the use of the material, as well as its relative unavailability except in the major centers. In addition, there is some danger to the severely toxic patient in the exacerbation occasionally seen in the first few days after treatment. This is thought to be due to the release of hormone from the damaged thyroid cells.

The hazard of excessive irradiation is known, but how this applies to the dosage range of radio-active iodine and the thyroid gland remains unknown. Widely different opinions are held by well qualified men.[6] The data upon which to base an accurate judgment are not available at the present time and will only be available after approximately another decade of careful follow-up of patients who have been so treated. On the basis of the known development of malignancy in other tissues with the use of other types of irradiation, it does seem likely that fifteen to twenty years would be the expected time lapse. With this in mind, the use of radio-active iodine in the treatment of patients with a life expect-

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From the Department of Medicine, The Duluth Clinic, Duluth, Minnesota.

Read in the Symposium on Therapy at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

ancy that falls within this range appears to be justified.

Anti-thyroid drugs—propylthiouracil, methylthiouracil, iodourocil, tapazole, et cetera—have been in use since 1943. Of this group, propylthiouracil seems to have the lowest toxicity,[3] and to have the additional advantage of the widest trial. Cope[6] in his review of the subject makes the statement that there is no proved case of hyperthyroidism in which the goiter has not eventually responded with an ultimately normal metabolic rate, provided that the drug is given regularly, persistently and in large enough doses. It has been shown in a well controlled series[15] that with a dose of 250 mg. daily, only one-half of the patients obtained an adequate response. With 300 mg. daily, 95 per cent of the patients were effectively treated, and with 400 mg. all the patients in the group responded. The drug seems to be safe if the patient is warned to report immediately to the physician any rash, fever or sore throat that develops. The average recurrence rate after such therapy has been about 50 per cent. In selected patients, Graves' disease with small to moderate sized glands (not postoperative recurrences)—a maintained remission has been reported in 75 per cent with a follow-up of two years or less.[10] This therapy avoids the disadvantages associated with operation and its complications and with the unknown carcinogenetic possibilities of 1 in 131. It is the only mode of treatment which leaves the patient with an intact thyroid gland.

The disadvantages of the anti-thyroid drugs are: (1) the high recurrence rate which is roughly 50 per cent after only a few years' follow-up; (2) the need for treatment over a period of six to twelve months. Inherent here, of course, is the difficulty of keeping many patients under surveillance for this period of time and, in addition, the necessity for close post-treatment follow-up because of the high recurrence rate.

At the present time it seems to be the consensus that the best method of treatment in most instances remains subtotal thyroidectomy, after adequate preoperative preparation. It possesses all the advantages of the known and sets a good standard for therapeutic results that new therapies must meet. The mortality rate in leading centers with this treatment has dropped to 0.1 per cent. The disadvantages remain: (1) the need for an operation with its attendant discomfort, expense and occasional danger; (2) the occurrence of the two major complications, parathyroid tetany and vocal cord paralysis, both of which continue to appear in about 1 per cent of the patients, even in good hands.

It seems that the anti-thyroid drugs have their greatest field of usefulness as a means of preoperative preparation.[4] Some physicians use them in controlling only those patients who have the disease in severe form preliminary to subtotal thyroidectomy or radio-active iodine administration. Others employ them routinely. With their use the dreaded crisis or thyroid storm has virtually disappeared, as has the need of staged operations for the complicated thyrotoxic patient. Whether the routine or selected use is most efficacious cannot be determined until large series have been observed over a longer period of time. These steps are usually followed:

1. Propylthiouracil, 300-500 mg. per day, in two or three divided doses until the metabolic rate is normal and normal weight approximated. Supportive measures include: high protein, high calorie, high vitamin diet and regulated rest.
2. Iodine is given from the beginning until operation or during the last few weeks prior to operation.
3. The patient is to report fever, rash, or sore throat at once.
4. Propylthiouracil is discontinued one week prior to operation to avoid a possible drug reaction during the immediate postoperative period.
5. Observation with basal metabolic rate and cholesterol determinations for one or two days before operation.
6. Operation only when the patient is perfectly normal.

Toxic Nodular Goiter

Opinions seem practically unanimous that the treatment of choice for toxic nodular goiter is adequate preoperative preparation with one of the anti-thyroid drugs, iodine, diet and rest, followed by subtotal thyroidectomy. This procedure with an operative risk of 0.1 per cent removes the goiter (and allows for its inspection by a pathologist) which statistically has a 1.0 per cent incidence of malignancy. Recurrent hyperthyroidism here is not expected. In the younger patient who refuses operation, control of the disease over a period of one year with one of the anti-thyroid drugs and iodine would seem best. However, the goiter remains and a recurrence rate of 50 per cent or better can be expected in two years. The patient who is a very poor risk because of associated disease, or the patient who has only a short life expectancy, can be controlled with one of the anti-thyroid drugs and iodine with or without subsequent radio-active iodine. Radio-active iodine, at least at the present time, seems to be contraindicated in the younger patients with toxic nodular goiter because, first, larger amounts of radio-active material are needed to control a given degree of hyperthyroidism in this type of goiter, and thus there is an increased possibility of malignant degeneration due to radiation, and secondly, the patient has a *nodular* goiter with its own hazard of malignant change.

Non-toxic Nodular Goiter

1. Solitary nodules. There seems to be fairly general agreement on a malignancy rate of approximately 20 per cent in this entity.[5,7] Because of this, operative removal is necessary. If malignancy is present, isolateral lobectomy together with a careful search for, and removal of, any suspicious lymph nodes in the drainage area is the only sane approach. If indicated, a radical neck dissection should be carried out. The majority of these malignancies are of low grade so that a thorough procedure initially provides an excellent outlook. The patient should be followed at six-month intervals for at least ten years with the object of surgically removing any further lymph nodes that might appear. Recurrent nodes after twenty years have been reported. We are following one patient with recurrent nodes twenty-two years after her initial surgery. Inadequate primary surgery leads to distant metastasis or, more commonly, local recurrence with or without local invasion and all the difficulties inherent in re-entering the scarred-up site of previous surgery.

2. Lateral aberrant thyroid tumors are now generally recognized as metastases from a primary tumor in the isolateral lobe which necessitates a hemithyroidectomy in addition to the lymph node dissection, even though a palpable tumor in the thyroid is not present.[5,9]

3. Multiple nodules. The incidence of carcinoma in this group varies from a few per cent to as high as 12.8 per cent, depending on whose data you accept.[5,7,11,13] I do not quite know what to make of these statistics. We see a large number of nodular goiters in this area and it is difficult to imagine finding more than 10 per cent of them harboring carcinoma if they were all routinely removed. We have on one hand the large number of multiple nodular goiters seen, and on the other hand the relative rarity of clinical carcinoma of the thyroid developing in such patients. There certainly must be a vast statistical difference between the incidence of carcinoma of the thyroid as judged by microscopic examination and clinical carcinoma of the thyroid as evidenced by extension beyond the confines of the gland or as a cause of death. Admittedly the problem of the pathologist is dfficult for obvious lymph node metastasis may look like normal thyroid tissue and the variety of local changes seen in the thyroid are difficult to assess. The need for correlation of the clinical and pathological evidences is certainly real. It should be remembered that excellent physicians a few years ago reported thirteen out of fourteen parathyroidomata as carcinomatous.[2] This may be true by their histologic criteria, but clinical carcinoma of the parathyroid is exceedingly rare, as judged by recurrence, extension or metastasis in a large series of parathyroid tumors followed over a period of many years.[1] An analogous situation perhaps confronts us in many instances in the thyroid gland. Oschner et al[5] argue logically that they are unable to differentiate carcinoma of the thyroid from benign nodular goiter in at least half of the cases, and that until it is possible to diagnose such carcinoma early by clinical means it must continue to be treated by the best weapon available—"prophylactic thyroidectomy." There is no doubt but that the mortality rate from prophylactic thyroidectomy is a great deal lower than the lowest current figure for the incidence of carcinoma in these glands, as reported frm surgical specimens. However, I continue to wonder about the need for wholesale surgery based alone on the reports from surgical pathology when we see death come to so few people from carcinoma of the thyroid. The argument has been raised that these patients die at home or at some distant center unknown to their physicians. We need better data to prove it.

There is one other attitude that bears on this line of thought. That is the old suggestion that

40 per cent of these goiters become toxic, or that *all* multiple nodular goiters will become toxic if the patient lives long enough. Certainly if one believes this and believes the data on the incidence of carcinoma of the thyroid, there would seem to be very little argument against prophylactic thyroidectomy in any patient with a nodular goiter and a life expectancy of over ten to fifteen years.

Thyroiditis

According to Crile,[8] the three varieties: (1) subacute thyroiditis, (2) struma lymphomatosa (Hashimota) and (3) struma fibrosa (Riedel) are distinct entities and do not progress from one to the other.

Subacute thyroiditis during the acute phase reveals a pseudotuberculous appearance on biopsy similar to that seen in its most chronic form. In any form, operation is not required since the process is self-limited and is said to respond well to doses of x-ray too small to significantly alter thyroid function. In its chronic form and especially when one side is more predominantly involved, confusion with Riedel's struma has occurred. The differentiation is important as Riedel's struma is an irreversible process, will not respond to x-ray, and requires operation for relief of symptoms. The same may be said of carcinoma. If in doubt, biopsy should be carried out before x-ray treatments are started in a patient with clinical diagnosis of subacute thyroiditis, or before operation in suspected Riedel's struma.

Struma lymphomatosa simulates a multi-nodular goiter in a forty to fifty-year-old woman with hypothyroid tendencies. The diagnosis can be established by biopsy with a Silverman needle. Operation is not necessary as the goiter will respond to x-ray therapy and thyroid extract.

Bibliography

1. Albright, F., and Reifenstein, E. C., Jr.: Parathyroid glands in metabolic bone disease, Baltimore: Williams and Wilkins, 1948.
2. Alexander, H. B.; Pemberton, J. de J.; Kepler, E. J., and Broders, A. C.: Functional parathyroid tumors and hyperparathyroidism: clinical and pathological consideration. Am. J. Surg., 65:157-188 (Aug.) 1944.
3. Bartels, E. C., and Sjogren, R. W.: 1-Methyl-2 Mercaptoimidazole: a new active anti-thyroid agent. J. of Clin. Endocrinol., 11:1057-1062 (Oct.) 1951.
4. Bartels, E. C.: Propylthiouracil: its use in the preoperative treatment of severe and complicated hyperthyroidism. Tr. Am. A. Study Goiter. Pp. 89-98, 1947.
5. Cerise, E. J.; Randall, S., and Ochsner, A.: Carcinoma of the thyroid and non-toxic nodular goiter. Surgery, 31:552-561 (April) 1952.
6. Cope, O: Medical progress: diseases of the thyroid gland. New England J. Med., 246:408-417 (March 13) 1952.
7. Deahrs, O. H.; Pemberton, J. de J., and Black, B. M.: Nodular goiter and malignant lesions of the thyroid gland. J. Clin. Endocrinol., 11:1157-1165 (Oct.) 1951.
8. Crile, G., Jr., and Hazard, J. B.: Classification of thyroiditis, with special reference to the use of needle biopsy. J. Clin. Endocrinol., 11:1123-1127 (Oct.) 1951.
9. Horn, R. C., Jr., and Ravdin, I. S.: Carcinoma of the thyroid gland in youth. J. Clin. Endocrinol., 11:1161-1178 (Oct.) 1951.
10. McCullagh, E. P.: Humphrey, D. C.; McGarvey, C. J., and Sundgren, D.: Results of propylthiouracil therapy for hyperthyroidism. J.A.M.A., 147: 106-110 (Sept. 8) 1951.
11. Rogers, W. F., Jr.; Asper, S. P., Jr., and Williams, R. H.: Clinical significance of malignant neoplasms of the thyroid gland. New England J. Med., 237: 569-576 (Oct. 16) 1947.
12. Soley, M. H., and Foreman, N.: Radio-Iodine therapy in Graves' disease: A review. J. Clin. Investigation, 28:1367-1374, 1949.
13. Vanderlaan, W. P.: The occurrence of carcinoma of the thyroid in autopsy material. New England J. Med., 237-221-222 (Aug. 14) 1947.
14. Warren, S., and Feldman, J. D.: The nature of lateral aberrant tumors. Surg., Gynec. & Obst., 88:31-44, 1949.
15. Wing, E. S., Jr., and Asper, S. P., Jr.: Observations on the use of propylthiouracil in hyperthyroidism with especial reference to long-term therapy. Bull. Johns Hopkins Hosp., 90:201-227 (March) 1952.

PUBLIC HEALTH SERVICE GRANTS AND FELLOWSHIPS

With publication of a new list, Public Health Service brings to just over $22 million the amount of money it has allocated for medical grants and fellowships within the last twelve months. The most recent tabulation, issued late in October, is for projects approved by the Surgeon General following recommendations made last June by the various National Advisory Councils to the Institutes of Health. In dollar value they amount to just over 13 million. Awards totaling $9.29 million were announced earlier in the year.

In the earlier total were included 143 fellowships, valued at $389,850; fellowships in the October, 1952, totals numbered 540 and were valued at $1,749,248. The latest assistance money was distributed among 1,211 investigators in twenty-one states, the District of Columbia, two territories and seven foreign countries.

National Cancer Institute allocated the largest number of fellowships and grants, 351 worth $2,457,871, while National Heart Institute distributed the most money, $3,464,898 among 338 projects. Totals for other Institutes were as follows: Microbiological, 160 and $1,296,843; Mental Health, 123 and $998,303; Arthritis and Metabolic Disease, 89 and $744,589; Neurological Diseases and Blindness, 91 and $720,910; Dental Research, 37 and $233,728; and non-categorical, 436 and $3,058,683.

—*Capitol Clinic*, Oct. 28, 1952.

NEW DRUGS IN THE TREATMENT OF HYPERTENSION

EDGAR A. HINES, JR., M.D.
Rochester, Minnesota

THERE ARE several new drugs which may reduce blood pressure in cases of essential hypertension. Some of these drugs are now available for general clinical use. Inasmuch as any of these drugs can produce serious reactions, every physician should become familiar with the accepted proper methods of administering them before he uses them in his practice.

The new drugs which I shall consider are as follows: newer veratrum preparations, particularly protoveratrine; sodium nitroprusside; dihydrogenated ergot alkaloids (hydergine); dibenzyline (688-A); hexamethonium (bistrium, C-6) and pentamethonium (C-5); 1-hydrazinophthalazine (apresoline, C-5968).

Newer Veratrum Preparations

Veratrum viride was one of the earliest drugs to be used in the treatment of hypertension. During the past few years better standardized preparations of veratrum have been available to the physician. This has revived the interest in veratrum in hypertension and toxemias of pregnancy. A number of these preparations are on the market and you are familiar with the use of most of them.

The response of the blood pressure and the patients' reactions to any of the veratrum preparations is variable from patient to patient and even at different times in the same patient on the same dosage. This makes regulation of dosage difficult and requires a carefully worked-out program and continued observation of the patient while taking these drugs.

One of the veratrum preparations most recently under intensive study is protoveratrine, a single-ester alkaloid of Veratrum album, the potency of which is expressed in micrograms. It is available for oral use in tablets, each of which contains 200 or 500 micrograms, or in a solution for intravenous use which contains 100 micrograms per cc.

It was hoped that this preparation would be effective by oral administration in a larger number of patients and that the dose could be more accurately administered than with the older veratrum preparations, thus widening the range between the hypotensive effects and the undesirable side-effects. It would seem from the studies reported that this has not been achieved. Protoveratrine is effective for long-term usage in only about one-third of patients with moderate to severe hypertensive vascular diseases. It has the same disadvantages as the other newer veratrum preparations.

Protoveratrine is useful when given intravenously, subcutaneously, or intramuscularly for the palliation of acute hypertensive crises such as hypertensive encephalopathy with headache, acute pulmonary edema, and toxemia of pregnancy with acute angiospastic episodes. It causes considerable local pain when injected subcutaneously or intramuscularly and if given in this way it should be combined with a local anesthetic, such as procaine hydrochloride.

Meilman has reported that protoveratrine, when administered intravenously, appears to be virtually specific for the headache, nausea, vomiting, insomnia, delirium, and coma of hypertensive encephalopathy, for the congestive failure of acute glomerulonephritis, and for the convulsions of toxemia of pregnancy.

For intravenous administration 1 cc. of the solution (100 micrograms) is diluted to 10 cc. with physiologic saline solution. The injection is given slowly and blood pressure is determined frequently. Administration is stopped when there is a satisfactory decline in blood pressure or relief of the symptoms of the hypertensive crisis. The usual dose administered intravenously is from 50 to 150 micrograms. Meilman advised administering 1.5 to 1.9 micrograms per kilogram of body weight.

Sodium Nitroprusside

According to Page this drug has been studied in the Research Division of the Cleveland Clinic for several years. It produces some interesting effects on the circulation and the blood pressure in animals and in patients with hypertension. In

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Read in the Symposium on Therapy at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

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animals, when given intravenously in very small amounts, it causes a marked fall in blood pressure and vasodilatation in the kidneys. These changes are not dependent on the nervous system.

The immediate effect apparently requires the action of the whole nitroprusside radical. Inasmuch as after a time much of this radical is converted to thiocyanates, the persistent effects may be due to the same effects as those obtained by the administration of thiocyanates. At the Cleveland Clinic the drug has been given orally to a group of patients with hypertension. Its long-term use must be controlled with periodic determinations of the blood cyanates.

The impression of the investigators who have studied this drug is that, although it has some of the properties of the thiocyanates, there is an additional effect which causes it to have a more impressive hypotensive effect than the thiocyanates. Further investigation will be necessary before it can be determined whether or not sodium nitroprusside has any real advantages over the usual method of administering thiocyanates to patients with hypertension.

Dihydrogenated Ergot Alkaloids (Hydergine)

The dihydrogenated ergot alkaloids (dihydroergocornine, dihydroergocristine, dihydroergokryptine) have a central sedative action and produce adrenergic blockage in the periphery. They also act centrally, causing stimulation of the vagal centers which induces bradycardia. This somewhat complicated action is said to cause vascular dilatation with increased peripheral blood pressure and a lowering of systemic blood pressure with bradycardia. The three alkaloids are combined in the preparation hydergine.*

Because of their blood pressure lowering properties the dihydrogenated ergot alkaloids have been used in the treatment of hypertension. Hydergine can be administered intravenously, intramuscularly, or subcutaneously. The unfavorable side-effects are minimal, consisting of nasal stuffiness and occasional nausea and vomiting when given intravenously.

The usual procedure is to give a test dose of 1 to 2 cc. (0.3 mg. to 0.6 mg.) of hydergine intramuscularly after establishing a basal blood pressure level. If there is a moderate but not a severe hypotensive response to this dosage, 1 to 2 cc. is given intramuscularly daily or every other day for a total of about forty injections. If there is no significant decrease in blood pressure with the test dose, the drug is unlikely to be effective in the long-term treatment of that patient.

Significant lowering of blood pressure has been reported to occur in from 25 to 65 per cent of patients with moderate to severe degrees of essential hypertension.[3,4] The development of tolerance has been reported in some cases on prolonged treatment. These drugs would seem most useful in the treatment of hypertensive crises induced by pheochromocytoma or hypertensive encephalopathy rather than in the long-term treatment of essential hypertension.

Dibenzyline (688-A)

Dibenzyline (N-phenoxyisopropyl-N-benzyl-B-chlorethylamine hydrochloride)** is a sympathicolytic and adrenolytic drug which may reduce blood pressure when administered orally or intravenously. It is most effective in reducing the elevated blood pressure resulting from pheochromocytoma, but may reduce blood pressure in cases of essential hypertension. It is less effective when given orally than when given intravenously. Bello and Soloff, in a small series of patients, found that dibenzyline, when administered orally, failed to reduce blood pressure in the hypertensive subject or to give any evidence of absorption. Allen and his associates also found that the oral administration of dibenzyline produced a much less dramatic reduction than intravenous injection.

Dibenzyline may be given slowly intravenously when diluted in 500 cc. of a 5 per cent solution of dextrose. The optimal total dosage is approximately 1 mg. for each kilogram of body weight. The reduction in blood pressure lasts two to nineteen hours. The intravenous administration of the drug is probably of less usefulness than the intravenous administration of protoveratrine in treating hypertensive crises, as untoward reactions frequently occur when dibenzyline is administered intravenously. The oral administration of the drug for long-term use in essential hypertension requires further study.

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*Manufactured by Sandoz Pharmaceuticals, Division of Sandoz Chemical Works, Inc., New York, New York.

**Manufactured by Smith, Kline & French Laboratories, Philadelphia, Pennsylvania.

Hexamethonium (Bistrium,* C-6); Pentamethonium (C-5)

Hexamethonium, a derivative of the polymethyline ammonium compounds, inhibits the action of the autonomic nervous system by blocking the impulses at the ganglia. The effects are similar to those of tetraethylammonium chloride, but are of much longer duration. Pentamethonium is similar in action, but has been less extensively used than hexamethonium. It is usually administered in the bromide compound and may be given orally, subcutaneously, or intravenously. The effect of hexamethonium is more prolonged but probably not greater in degree if renal insufficiency is present, unless there has also been a lowering of sodium in the serum due either to the disease or to the intake of a diet which is low in sodium content. It is rarely necessary to administer hexamethonium intravenously, and if given in this way the initial dosage should be very small, probably not more than 1 mg. or less, as very serious hypotensive reactions may occur. The oral administration of the drug occasionally causes serious complications, and if it is administered orally, the patient should be kept under close supervision.

The subcutaneous dose of the drug is 15 to 200 mg. This dose should be administered every six to twelve hours, depending on the response of the blood pressure. Larger doses must be used when the drug is administered orally than when it is injected subcutaneously. It is agreed that the oral administration of hexamethonium is less effective in reducing the blood pressure than is the administration by subcutaneous injection.

The undesirable reactions which may result from injections of hexamethonium are severe hypotension, marked orthostatic hypotension, constipation, paralytic ileus, and difficulty in micturition. Severe hypotension is evidence of overdosage and should be treated by placing the patient in the recumbent position and by elevating the foot of the bed. It may be necessary to administer 2 to 5 mg. of phenylephrine hydrochloride (neosynephrine) intravenously if severe hypotension persists.

The complications, constipation, paralytic ileus, and urinary retention, may be prevented by the sublingual administration of 5 to 20 mg. of urecholine chloride (bethanechol chloride).

1-Hydrazinophthalazine

1-Hydrazinophthalazine was designated originally as C-5968,‡ and is now supplied as apresoline. It appears to reduce blood pressure by its action on the midbrain or hindbrain, and according to Schroeder[7] inactivates many pressor substances in the blood, such as pherentasin, hypertensin, and others. The dose varies from 50 to 150 mg., which should be administered orally three to five times daily.

Undesirable side-effects are headache, tachycardia, and severe orthostatic hypotension. Nausea and vomiting, paresthesias in the extremities, nervous tension, and mental depression may occur occasionally. The milder side-effects usually subside within three or four hours and require no treatment. Headache, if severe and prolonged, may be controlled by the administration of dimethyl-hydrinate (dramamine), or aspirin, and can be prevented by the prior administration of hexamethonium bromide.

1-Hydrazinophthalazine administered alone has been found to be an antihypertensive agent of only moderate potency. A significant reduction in blood pressure occurs in about 70 per cent of cases, but the blood pressure almost never is maintained at or near a normal level.

Administration of 1-Hydrazinophthalazine With Hexamethonium Bromide

Because of the reported difference in the mode of action of the two drugs, one acting predominantly peripherally and the other centrally or by inactivating pressor substances in the blood, it was logical to try a combination of these drugs. Some investigators believe that the most effective method now available for treating essential hypertension is by administering 1-Hydrazinophthalazine and hexamethonium bromide together or on an alternating dosage program. Others do not believe these drugs have a synergistic action.

Schroeder[7,8] has reported that this combined therapy resulted in complete control of the hypertension in all cases of benign hypertension and in all but two of thirty cases in the malignant stage without renal insufficiency. He had observed that too quick withdrawal of the drugs was associated with serious reactions and that these reactions had resulted in death within a few days or weeks after withdrawal in six patients. Schroeder stated that no tolerance to the drugs developed in patients after normal blood pressure had been established, or if the patient had been taking the drugs satisfactorily for more than a month. In the malignant stage, in which normal blood pressure levels are not usually attained with the drugs, tolerance may develop in the early weeks of treatment.

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*Manufactured by E. R. Squibb & Sons, New York, New York.

‡Manufactured by Ciba Pharmaceutical Products, Inc., Summit, New Jersey.

These two drugs have been used in a clinical study at the Mayo Clinic by Drs. Allen, Barker, Kvale, Shick, Estes and myself for the past eight months. We have obtained information sufficient to enable us to form an opinion as to the value of these drugs in the treatment of severe essential hypertension over a period of a few weeks or months, but not for longer periods.

Patients to whom these drugs are to be administered must be hospitalized for a minimal period of three weeks for preliminary observation and careful adjustment of dosage. We have treated patients with group three and group four essential hypertension less than fifty years of age, or patients with group two essential hypertension whose blood pressures are more than 200 mm. of mercury systolic and 120 diastolic. Patients with severe renal insufficiency have not been given these drugs.

The period of observation was begun with a pretreatment control period of from one to three days without the use of sedatives or other drugs. Treatment with hexamethonium bromide was started with a test dose of 15 mg. administered subcutaneously. The blood pressure of the patient was taken in the supine, seated, and erect positions several times during the first hour after the drug was administered, and any untoward reactions, especially marked orthostatic hypotension, were noted. If orthostatic hypotension was not severe, 15 mg. of hexamethonium bromide was given subcutaneously every twelve hours. The blood pressure was always taken before the next injection was given. If the blood pressure was lower than 130 mm. of mercury systolic, the next dose was omitted. If the blood pressure was not lowered, the dosage of hexamethonium bromide could be increased gradually to a total of 100 mg. over a period of two or three weeks.

Administration of 1-Hydrazinophthalazine, beginning with doses of 25 mg., was started six hours after the last injection of hexamethonium bromide. The initial dose should be no more than 25 mg. The dose was gradually increased up to a maximum of 200 mg. over a period of two or three weeks.

Most of our study was carried out by using the drugs concurrently. Hexamethonium bromide has been given subcutaneously at 6 a.m. and 6 p.m., and 1-Hydrazinophthalazine at noon and at midnight. The dosage of both drugs has been small at the beginning and has been gradually increased, depending on the side-reactions that occurred and on the patient's tolerance to the drug. Schroeder[8] has emphasized that to avoid the development of tolerance to the oral method of administration it is necessary to give the patient gradually increasing doses every day or every few days until the maximal effective dosage has been reached. We do not know whether or not such frequent increase in dosage is necessary if hexamethonium bromide is administered parenterally.

In general, we have been encouraged by the use of these drugs, particularly hexamethonium bromide, in the treatment of selected cases of essential hypertension. Subcutaneous administration of hexamethonium bromide produces a lowering of blood pressure in most cases and in many it produces a marked orthostatic hypotension with all the unpleasant secondary effects. These effects usually persist for three or four hours and usually become less noticeable as the injections are continued, even though the dosage is increased. We have observed the development of tolerance to the combined program in several patients within the first few weeks of treatment. 1-Hydrazinophthalazine seems to be less effective than hexamethonium bromide in the dosage we have employed. In many patients a high fixed elevation of blood pressure has become more labile in the lower ranges while they were taking the two drugs. In some cases the hypertension may be said to have been satisfactorily controlled on this program of treatment during the limited time of our observation.

Patients may be instructed to administer the medication to themselves and, unless they are under the closest observation of a physician, to take their own blood pressure so that they can properly regulate their dosage of medication.

One of the disadvantages of this program for the long-term treatment of hypertension is that it cannot be carried out satisfactorily unless the patient is intelligent and co-operative and can adequately control the administration of the drugs to himself.

(Continued on Page 1051)

TREATMENT OF THE CONVULSIVE DISORDERS

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THE PRIMARY objective of this paper is to stress the importance of the physician's responsibility in the treatment of the convulsive patient and to enable the convulsive patient to live the fullest, happiest life possible. Concomitantly it is often necessary to reassure and educate both the patient and near relatives. Each "epileptic" represents a challenge to the practitioner not only to completely control the seizures but also to achieve adequate social and economic adjustment. Successful medical management must include personality adjustment where necessary and an integrative rehabilitation program. The word "epilepsy" to the layman's mind continues to precipitate erroneous and alarming ideas, reminiscent of folklore. A convulsion is so dramatic in its manifestations that it is little wonder that the ancients conceived an individual so afflicted to be inhabited by the devil. Descriptions of the "fallen evil" later modified to "falling sickness" are found in writings of the ancient Egyptians, Arabians, and Hebrews. Thomas Willis[1] in the Eighteenth Century likened the convulsive attack to the explosion of a gunpowder charge and stated that the final cause is chemical in origin, a conclusion upheld by present-day investigators.

The modern era for the investigation and research in convulsive disorders to great extent followed the introduction of the electroencephalogram by Hans Berger in 1929. The development of the EEG has revealed differences between epileptics and normals, has shown what is taking place in the brain during the seizure and between seizures, and has uncovered new evidence about causal lesions. Treatment of the convulsive disorders has paralleled the advance of electroencephalography. The instrument has opened up new avenues for investigation and provided the spark for stimulating research. The EEG, however, does not tell us much about normal cerebral physiology, and certainly does not tell us why some individuals with brain trauma, cerebral neoplasm, et cetera have a convulsion and others do not; nor why a certain percentage (10 to 15 per cent) of epileptic patients will have a normal interim EEG record; nor why some patients become clinically seizure-free whereas the EEG tracing may become more abnormal. Nevertheless, the brain-wave apparatus has given to the clinician tremendous information to aid in proper diagnosis, the type of seizure discharge, and thus tend to indicate the proper anticonvulsant medication. The observations made with the EEG have confirmed many of the deductions of the pioneer neurologists (Jackson,[5] Gowers,[2] and others) and have further extended the knowledge of the spread of seizure discharge over the brain. Present-day investigation is also concerned with the chemical alterations, as abnormal concentrations of acetylcholine, that take place in the epileptogenic focus, and the mechanisms by which the various anticonvulsants are effective.

Inasmuch as we do not fully comprehend the fundamental mechanisms underlying the convulsive states, no wholly satisfactory definition can be given. Most definitions are purely descriptive. Lennox (1944) defines it in a comprehensive fashion: "epilepsy is a recurrent disturbance in the chemico-electrical activity of the brain which manifests itself in a symptom complex of which impairment of consciousness, perturbation of the autonomic nervous system, convulsive movements, or psychic disturbances are the essential components."[8]

Epilepsy presents a social and economic problem of considerable magnitude, for its incidence is surprisingly high. There are approximately 800,000 people in the U.S.A. with a convulsive disorder, an incidence of one in 200. This is a conservative estimate, as in many cases seizures are overlooked, concealed, or incorporated with other diagnoses. The number of veterans[10] afflicted with epilepsy is approximately 50,000,

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and it is expected that half of the 15,000 military men who survived penetrating brain injuries will develop post-traumatic epilepsy. The other social aspect of the problem of epilepsy is the hereditary element. Lennox[6] states that 17 per cent of the relatives of an epileptic patient had convulsions whereas the incidence of convulsions in normal families is 3.4 per cent. Lennox, Gibbs, and Gibbs[9] (1940) found that in a group of epileptics both parents had an abnormal EEG record in 28 per cent and with at least one parent in 94 per cent. These authors imply that the cortical dysrhythmia is inheritable, which may predispose the offspring to epilepsy. Williams[16] (1950) elaborates the hypothesis and believes that in addition to the tendency to epilepsy there must be another factor, that is the failure to prevent the spread of convulsive process. This limiting factor may be all important in preventing the clinical attack or in the alteration of the attack, thus giving use to the differences witnessed in the sub-types of the condition.

The practical aspect of the genetic factor presents itself when an epileptic patient asks for advice about having children. Barring all complications the incidence of having an epileptic child, wherein one parent only is a convulsive, is not much greater than the normal occurring incidence for epilepsy.

It is to be recalled that epilepsy is a syndrome whose presenting symptoms may vary from mild psychical states to severe status epilepticus. Every individual who has a convulsive attack warrants a complete medical and neurologic workup. A searching attack to uncover the etiology of the seizure discharge is of utmost importance in the proper management of the patient. If this be accomplished the diagnosis of so-called idiopathic epilepsy (essential, genuine) will not invariably be made, and the incidence of acquired (symptomatic) epilepsy will be surprisingly high. Nevertheless, it is true there will remain a large group of patients with no demonstrable organic pathology either by examination or by historical inference. The etiology of the epileptic patients seen by the individual practitioner to a large extent depends upon the physician's type of practice. Thus the neurologist and neurosurgeon will have a high incidence of brain tumors amongst their epileptics, the pediatricians a high incidence of brain trauma at birth, the state hospital superintendent a high incidence of congenital abnormalities and profound brain trauma, and the general practitioner more apt to see the normal ratio of genetic and sub-varieties of acquired epilepsy.

In addition to subdividing the convulsive disorders into the genuine (essential) or acquired etiologic groups, these disorders for purposes of diagnosis and treatment are classified according to the clinical type of seizure manifested by the epileptic. The vast majority of all seizures can be classified in one of six main groups. The classification is based primarily on the physical appearance of the patient during the seizure, but also in part on the EEG tracing. An observed seizure may be atypical or a mixture of two types, or may defy classification.

Type of Seizures

1. Jacksonian Motor Seizures, and Focal Motor Seizures.
2. Somatic Sensory Seizures.
3. Grand Mal (Generalized) Seizures.
4. Psychomotor or Psychic Equivalents.
5. Petit Mal Triad or Pyknolepsy.
6. Autonomic (Diencephalic) Seizures.

Anticonvulsive Therapy

As is true with all diseases the primary objectives of treatment are removal of the cause or causes, alleviate the symptoms, and prevent sequelae. Treatment falls into several main groups: (1) general; (2) psychological; (3) drugs; (4) dietary; (5) surgical.

General.—Experience has taught us that patients are less likely to have convulsions if they lead a well-balanced, equitable life. The epileptic should be directed to lead as normal an existence compatible with his type of seizures. Only such restrictions should be made that are necessary to safeguard the patient and the public. In this regard epileptic patients should not operate heavy machinery or drive automobiles until their seizures have been under complete control for at least several years. Every attempt should be made to correct incidental physical abnormalities and to keep the patient in good sound physical state. All types of alcoholic beverages tend to precipitate seizures and should therefore be absolutely forbidden. The only possible exception may be in the case of an elderly individual whose seizures are secondary to cerebral arteriosclerosis, and wherein an occasional drink increases cerebral circulation. The intake of non-alcoholic beverages by the young patients especially bears watching during the hot weather.

Psychological.—Proper mental hygiene is exceedingly important. Patients should not be shrugged off by merely administration of drugs. Most patients suffer more from the fear of seizures and social implications than from the seizure itself. The social stigma is still present even in this period of mental health enlightenment. This attitude is fostered by concealment by the patient's relatives, and the prevalent tendency that employers and educators have of getting rid of the epileptic from work and school. A great deal of restriction is introduced under the guise of safety. Patients and their families need to be protected from discouragement and this element of horror. Even though the physician cannot attain complete relief of seizures in every patient, he can inject and cultivate hope and morale in many. All questions relating to intellect, sanity, heredity, marriage, et cetera should be frankly discussed. The various myths and folklore pertaining to epilepsy should be exploded. It must be emphasized that the anticonvulsant drugs employed are neither "dope" nor habit forming. Clinical evidence indicates that in a number of patients anxiety, tension, fear, and the like may actually precipitate or increase the number of seizures. Important as psychological health is in the therapy of the epileptic it in itself cannot adequately control the seizure discharge. From the therapeutic point of view the greatest advances in therapy have come about through the introduction of new anticonvulsant drugs.

Pharmacotherapy of Epilepsy.—The recent increase in the number of anticonvulsants available has to a certain extent complicated the task of choosing the proper drug for the individual patient. A drug that may be effective for one type of seizure may be harmful for another; that is, a single drug may control petit mal and accentuate grand mal. The selection of medication depends primarily upon the type of seizure. Much time and grief can be eliminated by choosing the drug most likely to succeed.

Approximately 100 years have passed since bromides were first used in the treatment of seizures. Credit belongs to Sir Charles Locock,[11] who reported the use of bromides in 1857. The drug was introduced to treat onanism, which supposedly was the cause of the seizures. Considering the inadequacy of previous medications, the introduction of bromides was a tremendous therapeutic advance and received with ready acceptance and acclaim. Enthusiasm for the newer drugs has relegated and threatened to displace the bromides altogether. Nevertheless various studies (Pollock[14]) substantiate the effectiveness of the bromides when administered skillfully.

The next important milestone in the development of pharmacotherapy was the use of phenobarbital in 1912 by Hauptman.[4] However, it was not put to general use until after World War I. The first report in the American literature was that of Grinker's[3] in 1920, following which the drug received wide acceptance and innumerable articles were published heralding this new anticonvulsant.

Up until the mid 1930's it was the opinion that effectiveness of bromides and barbiturates was secondary to their sedative powers. Merritt and Putnam[15] reasoned that the protection offered by these drugs might be specifically anticonvulsant rather than hypnotic and in 1937 introduced Dilantin after an exhaustive study of approximately fifty various compounds. Dilantin (diphenylhydantoin sodium) was the least sedative and best anticonvulsant of the drugs tested. In June, 1938, before the AMA meeting in San Francisco, Merritt and Putnam[12] reviewed their clinical experience with Dilantin. In the decade following numerous other hydantoins were investigated and offered for clinical use. The most commonly used in addition to Dilantin are Mesantoin (methyl phenylethyl hydantoin) and Thiantoin (phenyl thienyl hydantoinate).

The use of the hydantoins together with barbiturates and bromides gave to the clinician an excellent combination for treatment of the major (grand mal) attack, but was disappointing in treatment of petit mal triad. Thus the search continued and in 1945 Lennox[7] reported on the effectiveness of Tridione (trimethyloxazolidine dione), and later Paradione (dimethylethyloxazolidine dione). Other new anticonvulsants have been available to the clinician, including the other hydantoins and recently Phenurone (phenacetyl urea).

We are still looking for the ideal anticonvulsant, one which should offer complete control against seizures, be equally effective against all types of seizures, and be free of side-effects. Williams[16] believes that the sedative anticonvulsants (barbiturates) protect the brain from the epileptogenic focus whereas the hydantoins directly inhibit the epileptic process without depressing the remainder of the cerebral cortex.

The chief pitfall in the treatment of convulsive disorders is failure to use the correct medication, or the failure to use a sufficient amount of the medication or medications.

Specific Drugs

Phenylethylbarbituric acid (Phenobarbital).—Phenobarbital is a sedative, and drowsiness frequently limits the amount that can be given. Individual susceptibility varies widely. Those who are allergic to the drug will develop a rash usually within two to three weeks. Overdosage results in the common barbiturate toxic symptoms, viz: ataxia, slurred speech, mental cloudiness and in the extreme case, coma. Phenobarbital is available in white tablets containing ¼, ½ and 1½ gr. It also may be dispensed as an elixir, ¼ gr. per teaspoonful, or given parenterally in the soluble sodium salt. It is extremely useful alone or in combination with other anticonvulsants in the treatment of grand mal, Jacksonian, and focal seizures. It is less effective in the treatment of psychomotor attacks and petit mal triad. Parenterally it is excellent for control of status epilepticus. It is excreted slowly, so that it need be given only once or twice per day, and usually given at bedtime to prevent drowsiness. Seldom is the total daily amount pursued beyond 3 to 4½ gr.

Diphenylhydantoin sodium (phenytoin sodium—Dilantin).—This is the drug of choice for the treatment of all major convulsions (grand mal), Jacksonian, and focal seizures, and the drug to be first tried in psychomotor seizures. It possesses effective anticonvulsant properties with little hypnotic effect. However, its administration requires careful supervision as the dose required to produce therapeutic effect may approach that at which toxic symptoms appear. Approximately 10-20 per cent of patients will have moderate reversible toxic reactions, of which are giddiness, inco-ordination, tremor, double vision, nystagmus, skin rash, gastric distress, and hypertrophy of the gums. Rarely an occasional patient may experience psychotic-like symptoms. These symptoms may be overcome by temporary reduction or withdrawal and then gradual readministration.

The drug is supplied in sealed capsules as follows: ½ gr., 1½ gr., 1½ gr. with ¼ gr. Phenobarbital, 1½ gr. Dilantin in oil, and 1½ gr. enteric coated capsules. For adults the usual dosage is one capsule (gr. 1½) three times a day, with each meal. If seizures continue an additional capsule at bedtime and if necessary increase to five to six capsules per day until seizures are controlled or unpleasant side-effects appear. If uncontrolled on four and five 1½ gr. capsules or they produce unpleasant reactions, compromise may be reached by taking four and five capsules on alternate days. Continuance of seizures on maximal tolerated dosage requires the addition of one of the other hydantoins or barbiturates.

For those individuals who complain of gastric distress while taking Dilantin, Dilantin in oil is recommended. An enteric coated capsule may be prescribed with plain Dilantin capsule at bedtime to provide for "around the clock" regime. For young children one-half the adult dosage is prescribed with gradual increase as needed.

With long continued use of Dilantin, most patients retain their initial improvement; however, an occasional patient after a long period of control may experience a recurrence of seizures. According to Williams,[6] when a patient taking hydantoins has a convulsion, he does so in an unprotected cerebrum which responds maximally, supporting the theory that the various anticonvulsants available operate in a dual fashion: (1) by reduction of the focus of irritability and (2) increasing the convulsive threshold of the remainder of the brain.

Methylethylphenyl barbituric acid (mephobarbital, Mebaral).—The sedative effect of Mebaral grain for grain is less than for Phenobarbital, hence larger amounts of the drug can be used without the production of mental clouding. It is frequently used in combination with the hydantoins and diones. It is supplied in ½ gr., 1½ gr. and 3 gr. white tablets. For adults starting dosage is 1½ to 3 gr. tablet three times a day.

Methylphenylethyl hydantoin (Mesantoin).—This drug is closely related to Dilantin and may be substituted for it or used in conjunction with it and the barbiturates. It is of minimal effect in the petit mal triad. Its superiority over Dilantin cannot be predicted. Even though Mesantoin can be given in much higher dosages than Dilantin, produces little or no ataxia, gum hypertrophy, gastric irritation, or hirsutism, it has the serious drawback that in the occasional patient it produces bone marrow depression with resultant blood dyscrasia and possible death. The less disturbing toxic or sensitivity symptoms include morbilliform rash with fever and itching, lymphadenopathy, and bleeding from the mucous membrane. Mesantoin is available in 1½ gr. pink tablets and in combination with ⅓ gr. Phenobarbital (Hydantal). Dosage is similar to Dilantin.

Sodium phenylthienyl hydantoin (Thiantoin sodium).—It is closely related chemically to Dilantin and has similar therapeutic and side effects. Although the drug has been available for over eight years reports in the literature are few. Peterman's reports[13] are favorable. There is no indication that Thiantoin precipitates or accentuates other types of seizures. It is available in 2 and 4 gr. capsules and in a lime colored suspension, 2 gr. per dram. The usual adult dose is 2 gr. three to four times a day.

Bromides.—The bromides, the original effective anticonvulsant, have been excelled by those previously mentioned, but should not be forgotten when the occasional patient fails to respond to the newer drugs. The side effects which limit the dosage are acne-like skin eruptions, mental apathy, and occasionally psychotic behavior. Although the bromides unlike the other antiepileptics can be measured in body fluids, the serum concentration does not parallel the clinical effectiveness. Bromides are available in 10 gr. tablet form, powder or solution. The adult dosage varies from 2.0 to 4.0 gm. per day.

Trimethyloazolidine dione (Tridione).—This is the drug of choice in the treatment of the petit mal triad and occasionally useful in psychomotor attacks when used with the hydantoins and barbiturates. Tridione unfortunately may precipitate or increase the number of grand mal attacks while controlling petit mal and should therefore seldom be used alone and should always be combined with the other anticonvulsants in an individual who suffers from both major and minor attacks. The minor side reactions, which may require temporary cessation, include gastric distress, morbilliform rash, somnolence, irrritability, hemeralopia, and hiccoughs. The potentially most serious complications are bone marrow depression, nephrosis, and exfoliative dermatitis. A number of fatalities have been recorded. Tridione is dispensed in capsules containing 5 gr. or as a peppermint flavored elixir 2½ gr. per dram. The adult dosage varies from 15 to 30 gr. per day, and for young children initial dosage is 7½ to 10 gr. per day.

Dimethylethyloxazolidine dione (Paradione).—It is an analogue of Tridione, similar in action, but although less apt to be toxic than Tridione, is less effective in the treatment of the petit mal triad. It is dispensed in two sizes, gr. 5 and gr. 2½. Dosage is similar to Tridione.

Phenacetylurea (Phenurone).—After four years' trial the drug is now available on the market. It is recommended in stubborn cases of epilepsy, chiefly psychomotor seizures, when the other anticonvulsants have failed. It should be used only with the full realization that it is potentially dangerous. One of the most frequent side reactions seen is a personality change, varying from mild depression to frank psychosis. Other reactions include nausea and vomiting, anorexia, headache, drowsiness, weakness, et cetera. The alarming toxic reactions include bone marrow depression and liver damage. Several deaths have been reported. Phenurone is supplied in 0.5 gm. bisected tablets. It is reported that side reactions are less apt to develop if the drug is gradually increased. Starting adult dosage is one tablet (0.5 gm.) three times a day with meals. If no untoward effects after one week, an additional tablet may be taken on arising and later on a tablet at bedtime. An average dosage of five to six tablets per day is the most adequate.

Accessory Drugs.—An essential amino acid, glutamic acid, available in 0.5 gm. tablets, has occasionally been used with some success in the treatment of minor attacks. Theoretically its effectiveness results from reduction of cerebral alkalinity. The enthusiasm for improving mental retardation and control of petit mal attacks has not been upheld by recent investigators. The amphetamines (Benzedrine, Dexedrine) are useful in counteracting the sedative action of large dosages of the anticonvulsants and are useful in controlling nocturnal seizures. Presumably this latter effect is produced by alteration of the sleep mechanism, and thereby resulting in a lessened depth of sleep.

Summary of Drug Therapy

For the control of motor seizures (generalized, Jacksonian, and focal), the hydantoins and barbiturates, alone or in combination, are the most efficacious. These drugs in various combinations should be tried first for control of the psychomotor seizures, and if unsuccessful, a switch to Phenurone, singly or in combination. For the petit mal triad the diones are most specific. When more than one type of seizure is present in a patient or a single durg is apt to percipitate another variety, combinations are mandatory. The drug least apt to produce side reactions is to be tried first. Frequently the "trial and error" method is necessary to determine the correct medication and dosage. Nevertheless the use of electroencephalography frequently indicates the specific medication or medications. The dosage must be individualized and must be given in adequate amount.

The bromides, Dilantin, Mebaral, and Phenobarbital are safe drugs. Fatal reactions are virtually unknown when used in therapeutic range. About 10 per cent of patients have moderate, reversible side reactions and less than 1 per cent have severe toxic reactions. About 35 per cent of patients will have moderately severe but reversible side reactions with Mesantoin, Phenurone, Tridione, and Paradione, and dangerous toxic reactions in 1-2 per cent. Phenurone is known to produce liver damage. Serious reactions to Tridione, Paradione, and Mesantoin are pancytopenia and exfoliative dermatitis, and also the diones cause nephrosis. About thirty deaths have been reported in the last six years.

A new drug that is potentially dangerous should be given only if the physician is certain that the patient will follow instructions, keep appointments for routine checkups, including urinalysis and hematologic studies. Hematologic changes occur in stages: (1) modified normal response, (2) then controlled neutropenia, and (3) finally pancytopenia. Peripheral blood work does not necessarily parallel the activity of the bone marrow, as the latter may be damaged without immediate detection in the circulating blood. A white blood count below 2,000 cells is an absolute indication for withdrawal of the offending anticonvulsant.

Dietary Therapy.—Brain metabolism may be altered by the ingestion of various foods. Repeated clinical studies have demonstrated the beneficial effect of ketosis. Over thirty years ago an osteopathic practitioner advertised to the effect that abstinence of food was of benefit in control of convulsions. Later in a number of clinical laboratories studies in blood chemistry and acid-base balance were conducted. Starvation gave way to production of ketosis by means of a diet rich in fat and poor in carbohydrates. This ketogenic diet was most effective in the treatment of children and more specifically the petit mal attacks of children. Because the diets are difficult to prepare, expensive, and unappetizing to the patient they are seldom prescribed and dietary treatment has given way to the newer anticonvulsants.

Surgical Therapy.—It is obvious that if the patient's seizures are secondary to a brain tumor or other type of expanding intracranial lesion (hematoma, granuloma, abscess) that craniotomy is indicated; and it is equally understandable that the brain operation does not necessarily free the patient from seizures. After operative intervention medical therapy is to be maintained for a minimum of two years.

Surgical removal of epileptogenic foci, including post-traumatic and post-infectious scars has become increasingly popular with the advent of electrocorticography. Temporal lobectomy in the treatment of intractable psychomotor epilepsy and hemispherectomy of a severely injured cerebral hemisphere, peppered with epileptogenic foci, have shown promise. These surgical procedures for removal of unstable brain foci are justified when medical therapy fails. After cortical resection of these foci anticonvulsants must be continued for several years for safe measure. Surgical therapy does not imply discontinuance of pharmacotherapy, it renders the latter more successful.

(Continued on Page 1041)

DRUG THERAPY IN PARKINSONISM

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THE TREATMENT of a patient with parkinsonism is a combination of intelligent use of drugs, emotional readjustment and exercise. A great number of drugs have been used at one time or another. Most of these medications are now only of historical interest and are documented in a number of excellent reviews.[22,23,24,41] However, definite improvement in the clinical picture has been produced by some medications, and encouraged by this, investigators are still in search of the ideal drug for the treatment of parkinsonism. In view of the large numbers of new drugs introduced in recent years in therapy of this disease, a review of this phase of therapy seems timely. The medications currently in use or under investigation will be considered. The author's comments on the use of these medications are based on the experience of treating one hundred patients with parkinsonism over a three-year period at the parkinsonism clinic of the University Hospitals.

1. *Belladonna Derivatives.*—Excellent reviews on the belladonna drugs are available.[5,16,28,41] The belladonna drugs are widely distributed in nature, especially in the Solanaceae plants. Galenecal preparations of belladonna have been employed in medicine for many centuries and were known to the ancient Hindus. The professional poisoners of the middle ages often employed the deadly nightshade plant to produce a type of intoxication which was often prolonged and obscure. This prompted Linné to name this shrub Atropa belladonna, after Atropos, the oldest of the three fates who severs the thread of life. The word "belladonna" itself is a reminder of the antiquity of these medicines in that it signifies "beautiful lady," the women of long ago being wont to instill a decoction of belladonna in their eyes to produce dilated pupils, a sign of comeliness. In the treatment of parkinsonism, drugs of the belladonna group have been used since Ynauch in 1882 advocated the use of hyoscine. After that date, various alkaloids of belladonna, including atropine, hyoscyamine and scopolamine have been used extensively.

In 1926, Raeff,[41] a plant collector, used extracts of Bulgarian belladonna root to treat parkinsonism. This form of therapy was taken up and extended by Panegrossi,[41] who designated it the Bulgarian treatment. It was soon proved, however, that the Bulgarian belladonna root had no properties which made it superior as a therapeutic agent to the belladonna grown in other countries. Vollmer[39] considered that extracts of belladonna were too inconstant in the concentration of alkaloids and recommended the use of synthetic compounds, containing known concentrations of the various alkaloids. Extensive comparative studies[5,7] have shown that the alkaloids, root extracts and synthetic compounds have similar action and owe their activity to the alkaloids they contain. No one preparation is clearly superior to others. It is necessary to try the various drugs to find the one which is best for the individual patient. A change in medication may be necessary at a later date, and it is frequently necessary to shift from one drug to another for the maximum therapeutic benefit.[4,42]

The active alkaloids of the belladonna group used in the treatment of parkinsonism are atropine, scopolamine (hyoscine) and hyoscyamine. Atropine and hyoscine are used independently in the treatment of parkinsonism. Atropine[7] is administered in a 0.5 per cent solution commencing with 1 drop t.i.d and increasing to 10 drops t.i.d. Hyoscine is administered as hyoscine hydrobromide in tablets of gr. 1/100 and gr. 1/150. The amount of hyoscine hydrobromide given is that which produces the maximum benefit for the patient.

Tincture of stramonium contains atropine and hyoscyamine. The mode of administration of this drug recommended by Doshay[7] is to start with 20 drops t.i.d and slowly build up to 60 drops t.i.d.

The remainder of the drugs of the belladonna group, bellabulgara, rabellon and vinobel, are compounds, which contain varying proportions of atropine, scopolamine and hyoscyamine. Bellabulgara is a Lederle product. Each tablet of bellabulgara contains .4 mgm. of the total alkaloid of belladonna. Rabellon is a Sharp and Dohme

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TABLE I. RABELLON SCHEDULE

Rabellon Tablets—.5 mg. each

Days	*A.M.*	*Noon*	*Bedtime*
1	¼	¼	½
2	½	½	½
3	½	½	¾
4	¾	¾	¾
5	¾	¾	1
6	1	¾	1
7	1	1	1
8	1	1	1¼
9	1¼	1	1¼
10	1¼	1¼	1¼
11	1¼	1¼	1½
12	1½	1¼	1½
13	1½	1½	1½
14	1½	1½	1¾
15	1¾	1½	1¾
16	1¾	1¾	1¾
17	1¾	1¾	2
18	1¾	2	2
19	2	2	2

Increase thereafter by ¼ tablet daily. If any toxic symptoms occur, such as *excessive* dryness of mouth, dizziness or blurring of vision, return to dosage of previous day for one week and then attempt to increase again. An attempt should be made to maintain maximum dosage without untoward symptoms.

product and comes in .5 mgm. tablets. Each tablet contains .45 mgm. of hyoscyamine, .037 mgm. of atropine and .012 mgm. of scopolamine. Numerous publications[11,14,15,25,38,39,40] confirm the beneficial effect of this medication. Vinobel is a Merrill product. The tablets are of two sizes, .4 mgm. (red in color) and .8 mgm. tablet (orange in color). Numerous publications[7,25] confirm its therapeutic effect.

The toxic symptoms encountered in the use of drugs of the belladonna series are dryness of the mouth; urinary retention; visual blurring; gastrointestinal symptoms such as nausea, diarrhea and constipation; central nervous system symptoms such as headache, dizziness, and in some instances confusion, delirium and hallucinations.

Comment.—Rabellon, vinobel, bellabulgara and to a lesser extent hyoscine and atropine are the drugs of this group which are being used in the clinic. Atropine is particularly useful where salivation is a difficult symptom to control and the addition of atropine sometimes produces a gratifying amelioration of this troublesome symptom. The mode of administration of the drugs of belladonna series is to determine initially the maximum dosage of the drugs that the patient can tolerate and then to determine the minimum dosage which produces the maximum therapeutic effect. This is the maintenance dose of the drug. Table I illustrates the scheme which is used in the administration of rabellon. A similar schedule is followed when the other drugs are prescribed. It should be noticed that the maximum dose of the drug is given before retiring so that if toxic symptoms are encountered, they will occur while the patient is asleep and thus cause a minimum of discomfort.

2. *Dihydro-beta-erythroidine.*—The clinical use of this drug was reported by Shapiro and Baker[33] in 1950. The drug is an alkaloid and the usual dosage is four of the 50 mgm. tablets per day. This drug is used as an adjunct to the atropine derivatives. It is indicated where rigidity is a feature. It has little effect on tremor or upon the oculogyric crises. The toxic symptoms are usually transient and consist of gastrointestinal manifestation, visual disturbance and some dizziness.

Comment.—Further experience with this drug substantiates the findings as reported in 1950.

3. *Parpanit.*—In 1946 Grunthal[17] reported on the use of "parpanit," an antispasmodic related to "trasentine," in a number of extra-pyramidal disorders and found it more efficient and less toxic than the atropine-like substances. Hartmann[18,19] confirmed these observations in 1946 and 1947, finding parpanit far more efficient in Parkinson's disease than the atropine-like drugs and reported briefly on its use in about forty patients. Schwab and Leigh[30] studied its effects in fifty patients over a period of three months, and basing their views largely on the patient's ability to carry out the ordinary "chores of life," they considered that parpanit was more efficacious than the solanaceous drugs in 62 per cent of the cases, that it had an equal effect in 22 per cent, and that in 16 per cent the effect was not so good. Their dosage ranged from 90 to 600 mg. per day, given in divided doses, preferably every three hours, but at most every two hours. The average dose was found to be from 200 to 400 mg. per day, which represents one 50 mgm. tablet five times a day. Toxic effects were frequent and occurred in two-thirds of the patients, and it was necessary in one-fifth of the group to stop treatment on this account. The toxic symptoms encountered in order of frequency were, "giddiness," nausea and epigastric "burning," feeling of lightness of the legs and a sensation of floating. Dunham and Edwards[9] confirmed the lessening of rigidity in patients on parpanit and considered that its ac-

tivity was comparable to that of the solanaceous alkaloids, but some patients found its side-effects, of which the most prominent is a sensation of dizziness, less upsetting.

Sciarra, Carter and Merritt[28] after using parpanit in twenty-eight patients with Parkinsonism reported that none of them showed objective improvement, and in only one patient was there subjective improvement. Toxic side-effects were encountered in 86 per cent of the patients on whom the drug was used.

Comment.—This drug has proved to be of limited value in our hands in the treatment of parkinsonism. It is not routinely employed. The high incidence of toxicity is a relative contra-indication to its widespread usage.

4. *Artane* (trihexphenidyl, or 3-(1-piperidyl)-1-phenyl-1-cyclohexyl-1-propanol hydrochloride).—In general, the reactions of artane resemble those of atropine. However, it is entirely free of the toxic effects of atropine on the cardiac vagus, blood pressure and circulation.[6] Doshay and Constable[6] after investigating its use in 117 patients with parkinsonism concluded that artane was "the drug of choice in the arteriosclerotic and idiopathic cases, and should be tried regularly in postencephalitic cases in which atropine or other forms of medication prove disturbing or ineffectual." The usual dose used was between 6 to 10 mgm. per day—with doses as high as 50 mgm. per day being used without deleterious effects. The toxic symptoms encountered included dryness of mouth, blurred vision, nausea or vomiting, dizziness or giddiness and drowsiness. Corbin[3] reported on its use and found that of sixty-nine cases with idiopathic paralysis agitans fifty-three were benefited, and of seventeen post-encephalitics twelve obtained some relief. The drug appeared to act by relaxing rigid muscles and in some cases tremor also was improved. The side-effects, usually slight, were, in order of frequency, dry mouth, nausea, "giddiness," blurring of vision, nervousness or "jitteriness," tinnitus, "tightness in the head" and soreness of the mouth. Four patients had severe and immediate toxic reactions; namely, mental confusion, dizziness with nausea, and marked agitation. The average daily dose used by Corbin was 8 mgm.

Schwab and Tillmann[31] treated forty-four patients with artane for three months and found it improved the condition of twenty-nine, but in most of them it had its greatest effect when given in conjunction with parpanit, benadryl, or an atropine preparation.

Comment.—This drug has proved to be a valuable addition to the therapy of parkinsonism. At the commencement of treatment three of the 2 mg. tablets are prescribed daily. This is increased by 1 tablet every other day until the patient is taking 6 mg. three times a day. The pills are best tolerated when taken after meals. We have not found it ordinarily beneficial to exceed this dosage. However, in the occasional case, additional benefit is obtained from increasing the dosage. This drug is particularly welcomed by the older age groups because of the low incidence of toxic side effects. In this regard, the most troublesome and potentially dangerous side-effect is that of a toxic encephalopathy. We have encountered six such cases to date, one of which terminated fatally. It is frequently necessary after a period of artane therapy to add one of the drugs of the belladonna series as the effect of artane appears to wear off when administered alone.

5. *Tolserol (myanesin):* (3-orthotoloxy-1,2-propanediol).—Favorable results following the use of this drug in the treatment of parkinsonism have been reported.[1,20,21,29,37] Toxic symptoms were rarely encountered and consist of (1) complaints of weakness, either in the arms or legs accompanied by a feeling of lassitude,[29] (2) nausea in one case,[21] (3) leukopenia in two of eight cases.[13] Early British investigators reported the presence of hematuria and hemoglobinuria but this has not been found by investigators in the United States. Tolserol is available in oral preparations, as suppositories, and in a 2 per cent solution for intravenous administration. Jeub[21] reports the effect of an oral dose as transitory, wearing off in forty minutes.

Comment.—This drug has proved to be of no use in the treatment of parkinsonism in the patients followed in our clinic.

6. *Antihistaminic Agents.*—Budnitz[2] reported a beneficial effect from benadryl in the treatment of eight cases of paralysis agitans of the arteriosclerotic group. Ryan et al,[27] reported similar beneficial effects from the use of benadryl in the treatment of forty cases of parkinsonism.

Comment.—Our experience with benadryl and the other antihistamines indicates that they are of limited use in the treatment of parkinsonism. However, in some cases, some additional benefit is derived by the addition of 50 mgs. of benadryl three or four times a day to the medication which the patient is receiving. The sedative effect of the drug is gratifying when the patient is tense. It should be emphasized that if benadryl is used, it should be used in conjunction with other medications.

7. *Diparcol* (diethylamino, 2, ethyl-N, dibenzo-para-thiazine hydrochloride).—The use of diparcol in the symptomatic treatment of Parkinson's disease was described by Sigwald, Bovet and Dumont[35] in November, 1946, at a meeting of the French Society of Neurology. In a later paper[36] the same group of investigators reported on 168 patients who had been studied carefully. They claimed satisfactory and frequently dramatic results in 53 per cent, good results in 24 per cent, and fair in 17 per cent. Only 6 per cent of their patients represented therapeutic failures. They felt that the clinical response was substantially more gratifying than had been obtained previously with earlier drugs. Some improvement in symptoms has also been reported by other observers[8,32] but the side-effects of this drug will probably prevent its widespread usage: they include severe vertigo, paresthesia in the legs, somnolence, transient paralysis lasting about an hour,[10] nausea, vomiting, hyperthermia, and leukopenia.

Comment.—Because of the high incidence of toxicity, this drug has been used only to a limited extent in the parkinsonism clinic. However, some patients who have failed to respond to all other medications derive excellent symptomatic relief from the diparcol. Its use should be restricted to the patients in whom all other medications have proved of no avail.

8. *Benzedrine.*—In 1935 Prinzmetal and Bloomberg[26] used benzedrine in treatment of narcolepsy. Since then it and more recently dexedrine have been used in the treatment of oculogyric crises, psychic abnormalities and lethargy.[41]

Comment.—Both benzedrine and dexedrine are useful in the management of oculogyric crises, mild depressions and somnolence and lethargy. The usual dosage is 5 mgs. of either of the drugs, two or three times a day. If the medicine is well tolerated, it may be increased to 10 mgm. two or three times a day. It is important not to prescribe benzedrine or dexedrine after 4 p.m. as administration after this time frequently prohibits the patients from sleeping. Benzedrine and dexedrine are usually given in combination with other drugs directed towards relief of the tremor and rigidity of parkinsonism.

9. *Lysivane* (Parsidol): (diethylamino-propyl)-n-dibenzo-parathiazine hydrochloride).—In September of 1949, Sigwald[34] reported upon the use of lysivane in the treatment of 106 patients with parkinson's syndrome. He stated that the drug gave a greater percentage of symptomatic improvement than any other treatment used in these patients. In six patients, he found it necessary to terminate the therapy because of severe toxic symptoms such as painful cramps, palpitations and very severe dizzy spells. Gallagher and Palmer[12] subsequently reported favorably upon the use of lysivane in forty patients and felt that on the whole it was superior to artane. They noted minor effects of drowsiness and transient giddiness from the drug but in no instance was it necessary to terminate treatment because of the toxicity.

Comment.—Our experience with this drug has been limited to ten cases. In two cases, there has been a result superior to that obtained with the other medications which the patients had received. A further period of observation will be necessary to determine the therapeutic effect and toxicity of this drug.

Summary

In commencing drug therapy in parkinsonism, one of the following drugs is recommended: Vinobel, rabellon, bellabulgara, hyoscine or artane. It may be necessary to try each of these drugs in turn before satisfactory control of the patient's symptoms is obtained. Additional symptomatic relief can on occasion be obtained by the addition of benzedrine, dexedrine, benadryl or atropine to the above medications. In the occasional patient who fails to respond to various combinations of the above medications, the use of parpanit is worth a trial. The experimental drugs, diparcol, dihydro-beta-erythroidine and lysivane, are not yet available for general usage.

References

1. Berger, F. M., and Schwartz, R. P.: Oral "myanesin" in treatment of spastic and hyperkinetic disorders. J.A.M.A., 137:772-774, 1948.
2. Budnitz, J.: Use of benadryl in Parkinson's disease; preliminary report of eight cases. New England J. Med., 238:874-875, 1948.
3. Corbin, K. B.: Trihexyphenidyl, evaluation of the new agent in the treatment of parkinsonism. J.A.M.A., 141:377-382, 1949.
4. Denny-Brown, D.: Diseases of the Basal Ganglia and Subthalamic Nuclei. New York: Oxford Univ. Press, 1946. (Reprinted from *Oxford Looseleaf Medicine.)*
5. Dillenberg, S. M. and Merritt, H. H. (et al): Treatment of paralysis agitans with drugs. A Res. Nerve. & Ment. Dis., Proc. (1940), 21:542-550, 1942.
6. Doshay, L. J., and Constable, K.: Artane therapy for Parkinsonism. J.A.M.A., 140:1317-1322, 1949.
7. Doshay, L. J., Zigarell, J., and Loewy, P.: Recent trends in treatment of Parkinsonism. M. Rec., 160:339-344, 1947.
8. Duff, R. S.: Use of diparcol in parkinsonism. Brit. M. J., 1:613-615, 1949.
9. Dunham, W. F., and Edwards, C. H.: Parkinsonism treated with parpanit. Lancet, 2:724-727, 1948.
10. Editorial: Brit. M. J., 28-30, 1950.
11. Forster, F. M.: Treatment of parkinsonian syndrome. Pennsylvania M. J., 43:67-69, 1939.
12. Gallagher, D. J. A., and Palmer, H.: A comparative study of the use of artane and lysivane in the treatment of parkinsonism. New Zealand M. J., 49:531-536, 1950.
13. Gammon, G. D., and Churchill, J. A.: Effects of myanesin upon the central nervous system. Am. J. M. Sc., 217:143-148, 1949.
14. Gayle, R. F., Jr.: Treatment of parkinsonism with preparation of belladonna root. Virginia M. Monthly, 66:707-710, 1939.
15. Gold, L. H.: Belladonna root treatment of chronic encephalitis. Connecticut M. J., 5:811-813, 1941.
16. Goodman, L. S. and Gilman, A.: Pharmacological Basis of Therapeutics. Chap. 25. New York: Macmillan, 1941.
17. Grunthal, E.: Ueber Parpanit, einen neuen, extrapyramidal-motorische Storungen beeinflusseuden Stoff. Schweiz. med. Wchnschr., 76:1286-1289, 1946.
18. Hartmann, K.: Erfahrungen mit dem neuen Praparat "Parpanit" bei dez Behandlang von Erkrankungen des extrapyramidalen motorischen systems. Schweiz. med. Wchnschr., 76:1289-1291, 1946.
19. Hartmann, K.: Das Parpanit in der neurologischen Praxis. Ther. Umschan, 3:255-259, 1947.
20. Hunter, A. R., and Waterfall, J. M.: Myanesin in hyperkinetic states. Lancet, 1:366-367, 1948.
21. Jeub, R. B.: Use of tolserol (myanesin) in hyperkinetic disorders (with special reference to postencephalitic parkinsonism). Dis. Nerv. System, 11:179-181, 1950.
22. Matheson Commission: Epidemic Encephalitis; First Report. p. 174. New York: Columbia Univ. Press, 1929.
23. Matheson Commission: Epidemic Encephalitis; Second Report. p. 54. New York: Columbia Univ. Press, 1932.
24. Matheson Commission: Epidemic Encephalitis; Third Report. pp. 75-81. New York: Columbia Univ. Press, 1939.
25. Price, J. C., and Merritt, H. H.: Treatment of parkinsonism; results obtained with wine of Bulgarian belladonna and alkaloids of U.S.P. belladonna. J.A.M.A., 117:335-337, 1941.
26. Prinzmetal, M., and Bloomberg, W.: The use of benzedrine for the treatment of narcolepsy. J.A.M.A., 105:2051, 1935.
27. Ryan, G. M. S., and Wood, J. Spurway: Benadryl in the treatment of parkinsonism. Results of forty cases. Lancet, 1:258-259, 1949.
28. Sciarra, D., Carter, S., and Merritt, H. H.: Caramiphen hydrochloride (Panparnit) in the treatment of diseases of the basal ganglions. J.A.M.A., 141:1226-1229, 1949.
29. Schlesinger, E. B., Drew, A. L., and Wood, B.: Clinical studies in use of myanesin. Am. J. Med., 4:365-372, 1948.
30. Schwab, R. S., and Leigh, D.: Parpanit in the treatment of Parkinson's disease. J.A.M.A., 139:629-634, 1949.
31. Schwab, R. S., and Tillmann, W. R.: Artane in the treatment of Parkinson's disease, New England J. Med., 241:483-485, 1949.
32. Shapiro, S. K.: Unpublished data.
33. Shapiro, S., and Baker, A. B.: Treatment of paralysis agitans with dihydro-beta-erythroidine. Am. J. Med., 8:153-159, 1950.
34. Sigwald, J.: A new symptomatic drug in the treatment of Parkinson's disease. La Presse Medicale, 59:819-820, 1949.
35. Sigwald, J. Bovet, D., and Dumont, G.: Le traitement de la maladie de Parkinson par le chlorhydrate de diethylaminoethyl-N-thiodiphenylamine (2987 R. P.), Premiers resultats. Rev. neurol., 78:581-584, 1946.
36. Sigwald, J., and Grossiord, A., (et al): Le traitement de la maladie de Parkinson et des manifestations extra pyramidales par le diethylaminoethyl-N-thiodiphenylamine (2987 R. P.) Resultats d'une annee d'application. Rev. neurol., 79:683-687, 1947.
37. Stephen, C. R., and Chandy, J.: Clinical and experimental studies with myanesin (preliminary report). Canad. M. A. J., 57:463-468, 1947.
38. Vollmer, H.: Comparative value of solanaceous alkaloids in treatment of Parkinson's syndrome. Arch. Neurol. & Psychiat., 48:72-84, 1942.
39. Vollmer, H.: "Bulgarian treatment" of Parkinson's disease; pharmacologic aspects and clinical effects of alkaloids of belladonna root. Arch. Neurol. & Psychiat., 43:1057-1080, 1940.
40. Vollmer, H.: Bulgarian treatment of postencephalitic parkinsonism. J. Mt. Sinai Hosp., 6:93-99, 1939.
41. von Witzleben, H. D.: Methods of Treatment in Postencephalitic Parkinsonism. New York: Grune & Stratton, 1942.
42. Wilson, S. A. K.: Neurology, 2 v., p. 805. Baltimore: Williams & Wilkins, 1940.

Most people resist education and only the few seek it. Educators tell us there are three periods in life when the individual is very ready to learn: (1) the little child who is eager to learn everything; (2) the young mother who wants to learn how to care for her child; (3) the person who is ill and is very anxious to learn how to regain his health. The patient is a member of a community; he is anxious to learn how to get well and stay well, but he cannot learn without a teacher. The logical persons to reinforce the formal instruction which the patient receives, whether that instruction be given by the doctor or a nurse, are the members of the nursing staff in their daily contacts with the patient.—Aileen Flett, R.N., Canadian Tuberculosis Association, May, 1951.

SIMPLE PROCTOLOGIC PROCEDURES

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THE diagnosis and treatment of many disorders of the anorectal region fall within the scope of activity of the general practitioner and the general surgeon. This paper will have accomplished its purpose if some of its readers will have been stimulated to explore the possibilities suggested herein.

An accurate diagnosis is essential to the proper care of any disease condition. Especially is this true in the realm of anorectal diseases. Proctoscopic examinations have been available for many years. The procedure is a relatively simple one, and yet few people are given the benefit of this examination—even today. The time has come, however, when the proctosigmoidoscopic examination must be included as an integral part of every complete physical examination. Only in this way can we hope to improve the care which we give to our patients and to recognize and treat neoplastic diseases before the patient is confronted with a hopeless prognosis.

The present era should be referred to as the "proctoscopic era" because the importance of this examination is presently being recognized, and the procedure is rapidly assuming its rightful place in general physical surveys. Although the digital rectal examination is still a very important part of every physical examination, it cannot be considered an adequate means of investigating the lower bowel. Experience has taught that the proctosigmoidoscopic examination is the only accurate method at our disposal to evaluate the status of the rectum, rectosigmoid and lower sigmoid areas.

The time has come also when we should reevaluate the status of the barium enema x-ray in the diagnosis of lesions of the rectum and lower colon. Radiologists have warned time and again that the x-ray should not be depended upon to pick up or to rule out lesions in the rectal or rectosigmoid areas. Radiologists in increasing numbers are stressing the necessity for sigmoidoscopic examinations when there is a question of a lesion in that area. Yet, for some reason which is difficult to explain, physicians still send patients for x-ray studies of the colon as an initial procedure when symptoms point to trouble in the rectal or rectosigmoid areas and when a proctoscopic examination could easily and quickly supply the necessary information. The barium enema x-ray examination furnishes us with the only satisfactory means of visualizing the interior of the large bowel above the lower sigmoid colon and should be used routinely to supplement the information obtained from the proctosigmoidoscopic examination. It is extremely important to keep the fact in mind that 70 to 80 per cent of all large bowel disease is present in the lower sigmoid and rectal areas and that it is precisely in these areas that the x-ray is of questionable value. It would be well for all physicians to recognize that the indications for x-ray studies of the colon are *ipso facto* indications for proctosigmoidoscopic examinations.

Physicians interested in performing the proctoscopic examinations find little difficulty in learning the technique. The younger men are taught to perform the examination in the junior and senior years of medical school, and there is ample opportunity to practice the procedure during the internship. The physicians already in practice can, with a reasonable amount of effort, become proficient in the technique after a short period of time. The examination need not be a very painful experience for the patient. The physician should attempt to prepare the patient psychologically before the examination. If this is done, and if the examiner will carry on a running conversation during the examination to permit the patient to understand just what is occurring, the patient will relax and co-operate satisfactorily.

There are a few dangers that should be pointed out, and there are a few general rules that can be followed to avoid these dangers. In the performance of a proctosigmoidoscopic examination, one must be mindful of the fact that he is introducing a rigid metal tube into a hollow viscus and that perforation of the viscus may result. The peritoneal reflection on the anterior rectal wall sometimes reaches to very low levels and one cannot tell in a given case just where the reflection is located. Should perforation of the

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anterior rectal wall occur it is best to open the abdomen to make certain that the peritoneal cavity has not been entered. Perforations of the sigmoid colon always involve the peritoneal cavity and in the event of a sigmoid perforation the abdomen should be opened promptly and the perforation closed. If this is done within a few hours of the perforation, a proximal colostomy may not be necessary. If, however, a greater period of time has elapsed and there is evidence of peritonitis, a proximal colostomy should be performed at the time that the perforation is closed.

The following rules of safety should be observed when conducting proctosigmoidoscopic examinations:

1. A digital examination should precede every instrumental examination of the rectum. If the digital examination is done with a well-lubricated finger and gently performed without producing pain, the patient will be psychologically prepared for what is to follow. On the other hand if the digital examination is a painful experience for the patient, the subsequent instrumental examination will have to be performed under circumstances which are far from desirable. The patient will be tense and afraid, his muscles will be contracted, and the examination will be difficult to perform.

2. The obturator of the scope should be withdrawn as soon as the scope has passed beyond the grasp of the sphincters. From here on, the scope should be advanced only under direct vision.

3. Air insufflation should be used with caution. The use of air is a helpful adjunct in finding the lumen of the bowel but overdistention with air may cause disruption of the bowel wall or frank perforation. This is especially true in those patients in whom the bowel is already weakened by inflammatory processes or tumors. In patients suffering from ulcerative colitis or carcinoma the use of air insufflation is particularly hazardous.

Many of the procedures used to correct or alleviate anorectal disorders are quite simple insofar as techniques are concerned. When a complete examination of the entire rectum and lower colon has been performed, the following conditions will have been found in a large percentage of cases:

1. Rectal adenomas or polyps.
2. Hemorrhoids: internal, external and combined types.
3. External thrombotic hemorrhoids.
4. Anal fissure.
5. Perianal abscess.
6. Perianal fistula.

Rectal Adenomas or Polyps.—Polyps of the rectum and lower colon have been found in approximately 10 per cent of all healthy adults examined in the cancer detection centers throughout the country. Polyps are frequently found also in children and young adults who are examined on account of bleeding from the rectum. Since it is believed that all polyps in this area are premalignant, it is essential that they be diagnosed as early as possible and that proper treatment be instituted. Nonmalignant polyps in the rectum can usually be removed through the proctoscope as an office procedure. Since the rectal mucosa is devoid of sensory nerve endings, these polyps can be fulgurated without pain. Pedunculated polyps should be removed with some type of snare so that the polyps can be sent to the pathologist for microscopic section. Biopsy of the nonpedunculated polyps is also desirable to rule out the possibility of malignant changes. The destruction of polyps above the rectosigmoid area is best performed in the hospital since the danger of perforation is always present.

Hemorrhoids. — Most hemorrhoids are best treated by some type of surgical excision. There are several excellent techniques available which produce good results with short periods of disability and very little discomfort. Except for the excision of thrombotic external hemorrhoids and the injection treatment of internal hemorrhoids, patients should be sent to the hospital for this type of surgery. It is better for the physician to learn one method well than to try to adapt parts of various methods for a given case. A hemorrhoidectomy well performed and properly cared for during the healing period produces a very grateful patient. Poor results from hemorrhoid operations can usually be ascribed to lack of postoperative supervision of the wounds rather than to an inadequate surgical procedure. However, it must be borne in mind that a basic knowledge of the anatomy and physiology of the anorectal region is of paramount importance if one is to avoid the pitfalls of irreparable damage to the sphincter mechanism of the anal canal. The excision of hemorrhoids is usually a very simple procedure. The repair of a damaged sphincter, however, is usually a major surgical accomplishment.

The injection treatment of hemorrhoids remains a satisfactory and ethical method of treating a certain type of hemorrhoid. If the treatment is limited to the internal type of hemorrhoid which is not complicated by infection, stenosis or other type of lesion a good result can be anticipated. The poor results which are commonly seen are the result of the use of the injection treatment for hemorrhoids which do not fall into the above category. Quinine and urea hydrochloride (5 per cent and 5 per cent phenol in olive oil are the solutions most commonly used for the injection treatment. Sloughs and hemorrhage are the two complications most frequently seen, and these can be avoided by placing the solution in the proper place and by avoiding the injection of too large a volume of the solution.

Thrombotic External Hemorrhoids.—Thrombotic external hemorrhoids can usually be treated in the office. The clot of blood which produces the distention and pain only occasionally lies free beneath the skin and can be extruded through a linear incision. Most of the clots are firmly attached to the deeper tissues and are diffusely spread through the hemorrhoidal tissue in the distended mass. For this reason it is best to infiltrate the area around the hemorrhoid with a local anesthetic agent and to uncap the hemorrhoid rather than to incise it. The entire mass of hemorrhoidal tissue containing the clot can then be removed and a permanent result will be obtained. Sutures are required only if troublesome bleeding occurs.

Anal Fissure.—True anal fissures usually result from a combination of intrinsic pathological processes in the anal canal. The cure of the anal fissure is dependent upon the correction of the anal pathologic condition which produced the fissure. The application of ointments and the use of suppositories or silver nitrate solutions cannot be considered adequate treatment for anal fissure. Most fissures are secondary to infected anal crypts which have become traumatized by hard, constipated stools or explosive liquid movements. The surgical excision of the fissure should include the infected crypt and the resultant scarred area if present. Faulty bowel habits should also be corrected in order to assure a permanent cure. The surgical treatment of anal fissure is usually a simple procedure but must of necessity be radical enough to accomplish a proper end result. Inadequate treatment of this condition leads to unnecessarily long periods of disability. The injection of a long-lasting anesthetic solution beneath an anal fissure may give temporary relief from symptoms but does not usually lead to a cure of the fissure itself.

Perianal Abscess.—Abscesses appearing in or near the anal canal usually originate in the region of the pectinate line and travel subcutaneously to rupture or be drained externally. These abscesses should be drained or uncapped as soon as the diagnosis is made to avoid further destruction of the sphincter muscle fibres and the supporting tissues. A wound which is large enough to remain open without packing is preferable to simple incision since it serves to terminate the spread of the infection more adequately. Linear incisions tend to close over rapidly, and when this occurs, the infection continues to spread. A large percentage of these abscesses terminate as perianal fistulas. It is always a good policy to advise the patient of this fact so that he will anticipate a second operation for fistula. Patients do not take to the second operation kindly if they have been made to feel that the first operation did not accomplish the desired result. Except for the small abscess which is very fluctuant, the majority of these cases are best treated in the hospital where adequate anesthesia is available.

Perianal Fistula.—The fistulous tract resulting from a perianal abscess which was properly handled is usually a simple one. In other words, if the abscess was opened early in the course of the disease and before it had an opportunity to spread in different directions, the tract in all probability would be quite direct in its course. The cure of fistula-in-ano is always surgical. The tract must be laid open in its entirety although it is not essential to excise the floor of the fistulous tract itself. Wounds should be created that will remain open without packing, and these wounds should be kept as clean as possible during the

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Rh INCOMPATIBILITY ACCOMPANIED BY ACUTE RENAL FAILURE

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THE NECESSITY of more detailed Rh blood typing in prevention of acute renal failure was recently impressed on the staff of the University Hospitals by the appearance of a near fatal reaction in an Rh negative patient who received 1,000 cc. of Rh positive blood during an operation. These are preventable catastrophies which, in the light of present knowledge, should no longer occur in modern hospitals. It is the purpose of this report to document one such occurrence caused by failure to detect blocking antibodies in recipient serum, to describe means of preventing future accidents, and to outline briefly the management of this case.

Levine and Stetson,[4] on the basis of clinical experience in 1939, postulated the occasional presence of a hitherto unrecognized agglutinogen responsible for the sensitization of the mothers of erythroblastic infants. Subsequently, Landsteiner and Weiner,[3] in 1940, identified the Rh factor and Weiner and Peters,[11] observing this factor to be antigenic in Rh negative individuals, related it to the unnamed factor of Levine and Stetson.

Further researches[2,6,10] independently demonstrated that antibodies against the Rh factor usually agglutinate Rh positive red blood cells if the latter are suspended in specific protein media. These antibodies are referred to as albumen agglutinins, heat stable antibodies, or blocking antibodies. When antibodies cause agglutination of a saline suspension of erythrocytes they are designated saline or heat labile antibodies. To detect antibodies, the test red blood corpuscles can be suspended in serum, plasma, bovine albumen, or the Coombs[1] test may be applied. The following case report demonstrates the interference of blocking antibodies in a cross-matching procedure improperly designed to detect their presence.

Case Report

L. E. (U.H. 821510), a forty-seven-year-old white housewife was operated upon at the University Hospitals for a tumor at the angle of her right jaw which proved to be a malignant lymphoblastoma in the parotid gland. 1,000 cc. of blood was given during the procedure. On the third postoperative day icterus and anuria were noted, and the diagnosis of acute renal failure was established. Up to this time, the patient received 3,000 to 4,000 cc. of glucose 5 per cent in distilled water daily. From this point on fluid intake given as I.V. 50 per cent glucose solution was restricted to replacement of insensible fluid losses (Table I). In this fashion, a caloric intake of about 2,000 calories was provided daily despite persistent nausea and vomiting. The urine output rose to 50 cc. on the day following complete anuria and increased progressively to 1.5 liters on the fifteenth postoperative day.

Diuresis followed with formation of 6 liters of urine on the nineteenth postoperative day. Overhydration as assessed by mild pitting edema and increased body weight during the anuric phase was present from the second postoperative day and was not fully corrected until the twenty-first day after operation. Delay in establishing the diagnosis of lower nephron nephrosis, and parenteral fluid replacement with three to four liters of 5 per cent glucose in distilled water daily was responsible for the inadvertent overhydration in this patient. It is interesting to note the greatest depression of sodium and chloride occurred on or about the ninth postoperative day when the overhydration state was maximal as assessed by weight. This suggests that hemodilution plays a rôle in lowering the concentration of serum values of sodium and chloride. When diuresis was established these values rose toward normal, even though salt intake was restricted to less than the urinary losses of sodium chloride.

Discussion.—Retrospective investigation revealed the patient to be actually Rh negative and sensitized by two previous pregnancies. Her blood contained a high titer of antibodies that proved to be of the blocking variety. The patient was mistyped Rh positive and crossmatching methods used at that time did not provide a specific check for this kind of mistake. The procedure for typing and crossmatching at our hospital prior to the hemolytic reaction of this case was as follows:

1. Slide typing using anti-A, anti-B, and anti-D (anti-Rh) sera.
2. Cross-match in test tubes with incubation at 37°C for one hour. In one of two tubes was placed a mixture of donor's cells and recipients' serum in saline; in the other a

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TABLE I.

Surgery—1000 cc. Whole Blood I.V.

Postoperative days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	23	25	26
Daily urine volume	500	500	0	50	50	50	100	100	120	245	350	475	775	1500	1400	2250	2600	4000	6000	5840	5250	3975	5100	5900		
Gms. NaC1 in urine														5.5	7.4		10.2		21.6	16.8		16				
Body weight			124	126	128	131	130	130	131	132	131	130	130	129	129	128	127	125	121	120	120	117	115	116	116	117
Parenteral fluids—liters	3.0	4.0	3.1	2.7	0.9	1.0	1.4	1.0	1.0	0.6	1.0	1.0	1.2	1.2	1.5	1.0	2.9	3.5	4.4	4.3	5.0	7.9	4.6	3.7	6.6	
NaC1 administered			4.5	4.5				4.5	4.5	4.5	4.5	4.5	9	4.5	0	4.5	4.5	9	9	18	4.5	18	18	9	18	
50% Glucose administered							1000	900	500	500	1000	1000	1250	1000	750	750										
BUN				80	92	100	125	135	128	122	134	120	139	144	168	140	173	153	125	138	93	87	73	67		
CO_2				21	23	19	21	21	17	18	17	17	17	14	16		17	18	16	19	18	19	19	22	23	
C1				79	72	71	66	65	67	72	72	75	82	77	83		92	88	87	83	99	96	100	107	111	
Na								112	102			124	124		120	118	126	131	130		130	131	133	144	142	
K				4.7				4.3	4.6			5.1	4.5		4.9	4.8	4.8	4.6	4.7		4.0	3.3	3.3	3.1	3.2	

mixture of donor's serum and recipients' cells in saline.

3. If the blood was found to be Rh negative on typing, an additional test was done. A mixture of saline, anti-D serum and the donor's or recipient's blood were incubated for one hour at 37°C.

Recent changes of procedures in our blood bank include a test tube Rh determination on all bloods (step 3, above) since cold agglutination and rouleaux formation on slide typing are readily mistaken for true agglutinations. The saline suspension used for this test greatly reduces the probability of pseudo-agglutination and will correct the mistyped bloods from the slide test. In addition the standard cross-match (step 2 above) has been replaced by the serum cell method of cross-matching in which serum is used for the cell suspension in place of saline to identify blocking antibodies. Our patient's blood contained blocking antibodies which could have been detected accurately by this method. This test will also detect the small group of Rh positive individuals who have been sensitized by Hr antigen.

Experience with this and subsequent cases has made us increasingly aware of the importance of prevention of overhydration during anuria. Earlier authors attempted to resolve anuria by forcing fluids. Their report too often was: "in spite of injection of massive quantities of glucose and saline, the patient died of uremia and pulmonary edema." In the absence of fluid losses only 500 to 800 cc. of water needs to be replaced daily to maintain a 70 Kg. anuric patient in fluid balance.

The accumulation of metabolic products is not the important feature of this syndrome toward which therapy should be directed as Strauss,[8] Stork,[7] Thorn[9] and Muirhead[5] have emphasized. Available evidence indicates that death does not occur from retention of urea per se. Stork[7] found no correlation between death and height of blood-urea-nitrogen or non-protein nitrogen. Strauss[8] cites many cases of complete anuria from mistaken removal of a single kidney, carcinomatous obstruction of both ureters, and other causes in which the patients lived from five to seven weeks. It is of interest to note that these cases were reported in the older literature prior to the use of parenteral fluids. Death with lower nephron nephrosis since the era of parenteral fluid therapy, has usually occurred within eight days, and these patients invariably demonstrate pulmonary and generalized edema and increased body weight.

The development of hyperkalemia during anuria should be anticipated. If fluid and food are given orally, care must be taken to avoid the administration of potassium as contained in bouillon or fruit juice. Intravenous glucose and insulin may be helpful in treating hyperkalemia, but its effect is short lived. The artificial kidney appears to be an effective means of controlling hyperkalemia which appears during anuria. Increasing success with conservative management, however, both here and in other clinics, sharpens our awareness of the dangers inherent in the anuric patient. Strict control of hydration is probably the most important factor responsible for these successes.

Summary

The presence of blocking antibodies was recently responsible for failure to detect a mistake in Rh typing in our hospital. A hemolytic transfusion reaction resulted when the patient received

1,000 cc. of Rh incompatible blood during surgery. Complete anuria developed on the third postoperative day and a return to adequate urine output was delayed until the fourteenth day after operation. A moderate overhydration developed in our patient due to the two-day delay in detecting renal damage, and the necessity of giving fluids only in sufficient amount to replace insensible losses is stressed.

Modifications in the blood bank procedure include: (1) Performance of a test tube Rh determination on both Rh negative and Rh positive bloods, whereas formerly only Rh negative bloods were tested further in this manner. The mistyping of our patient could have been detected by this test. (2) Replacement of the saline suspension cross-match with the serum suspension method effectively detects blocking antibodies.

An incompatible blood transfusion has not been administered in this hospital in the two years since the above scheme has been utilized.

References

1. Coombs, R. R. A., Mourant, A. E., and Race, R. R.: A new test for the detection of weak and "incomplete" Rh agglutinins. Brit. J. Exper. Path., 24: 255-266, 1945.
2. Diamond, L. K., and Denton, R. L.: Rh agglutination in various media with particular references to the value of albumin. J. Lab. & Clin Med., 30:821, 1945.
3. Landsteiner, K., and Wiener, A. S.: An agglutinable factor in human blood recognized by immune sera for rhesus blood. Proc. Exper. Biol. & Med., 43:223, 1940.
4. Levine, P., and Stetson, R. S.: An unusual case of intragroup agglutination. J.A.M.A., 113:126-127, 1939.
5. Muirhead, E. E.: Acute renal insufficiency due to incompatible transfusions and other causes with particular emphasis on management. Blood, 2: (special issue) 1948.
6. Race, R. R.: The incomplete antibody in human serum. Nature, 153:771-772, 1944.
7. Stork, R. J.: Acute urinary suppression. Am. J. Med., 7:45-55, 1949.
8. Strauss, M. B.: Acute renal insufficiency due to lower nephron-nephrosis. New England J. Med., 239:693-700, 1948.
9. Thorn, G. W.: Treatment of renal insufficiency. J. Urol., 59:119-148, 1948.
10. Weiner, A. S.: A new test (blocking test) for Rh sensitization. Proc. Soc. Exper. Biol. & Med., 173-174, 1944.
11. Weiner, A. S., and Peters, H. R.: Hemolytic reactions following transfusions of blood of the homologous group, with three cases in which the same agglutinogen was responsible. Ann. Int. Med., 13: 2306-2322, 1940.

TREATMENT OF THE CONVULSIVE DISORDERS

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Conclusion

The treatment of the "epileptic" patient requires an adequate medical examination, use of diagnostic procedures to determine the most likely etiology, and administration of the specific drugs in adequate dosage. These measures should be followed with rehabilitation of the individual in every respect in order that the convulsive patient may become a social and economic asset. Treatment of the convulsive disorder requires treatment of the total personality.

Bibliography

1. Feiling, A.: Modern Trends in Neurology. London: Butterworth and Company, 1951.
2. Gowers, W. R.: Epilepsy. London: Churchill, 1901.
3. Grinker, J.: Further experiences with phenobarbital (Luminal) in epilepsy. J.A.M.A., 75:588, 1920.
4. Hauptmann, A.: Luminal bei epilepsie. Munchen med. Wchnschr., 59:1912.
5. Jackson, H.: Selected Writings of John Hughlings Jackson. London: Hodder and Stoughton, 1931.
6. Lennox, W. G.: Science and Seizures. New York: Harper and Brothers, 1946.
7. Lennox, W. G.: The petit mal epilepsies: their treatment with Tridione. J.A.M.A., 129:1069, 1945.
8. Lennox, W. G.: Personality and the Behaviour Disorder. New York: Ronald Press, 1944.
9. Lennox, W. G.; Gibbs, E. L., and Gibbs, F. A.: Inheritance of cerebral dysrhythmia and epilepsy. Arch. Neurol. & Psychiat., 44:1155, 1940.
10. Lennox, W. G., and Walker, A. E.: The treatment of the epileptic veteran. Vet. Adm. Tech. Bull., TB10-28 (April) 1947.
11. Locock, C.: Discussional paper, analysis of 52 cases of epilepsy observed by the author, by E. H. Sieveking. Lancet, 1:528, 1920.
12. Merritt, H. H., and Putnam, T. J.: Sodium diphenyl hydantoinate in the treatment of convulsive disorders. J.A.M.A., 111:1068, 1938.
13. Peterman, M. G.: Epilepsy in childhood. Newer methods of diagnosis and treatment. J.A.M.A., 138:1012, 1948.
14. Pollock, L. J.: Remissions of attacks of epilepsy treated with sodium bromide. J.A.M.A., 110:632, 1938.
15. Putnam, T. J., and Merritt, H. H.: Experimental determination of the anticonvulsant properties of some phenyl derivatives. Science, 85:525, 1937.
16. Williams, D. J.: New orientation in epilepsy. Brit. M. J., 1:685, 1950.

TREATMENT OF CONDUCTION DEAFNESS WITH ROENTGEN THERAPY

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THE PURPOSE of this paper is to discuss the treatment of conduction deafness with roentgen therapy and to review our experience at the Mankato Clinic with this form of therapy. We have used roentgen therapy in the treatment of chronic eczematoid external otitis and nasopharyngeal malignancy as a cause of impaired hearing, but in this paper we are concerned primarily with the use of x-ray in the treatment of nasopharyngeal lymphoid hyperplasia as a cause of conduction deafness. The literature concerning the use of radium in this condition is voluminous. However, little has been said and written about the use of roentgen therapy. Doctors Crowe and Burnam of Johns Hopkins University popularized the modern use of radium and its use has been only comparatively recent. A few national authorities in otology have stated that they are afraid of the use of radium, and that its use is only a passing fancy. Roentgen therapy has been used for many decades, and it is still used. Apparently its use is not a passing fancy.

The first report of x-ray therapy to the throat and auditory tube area for deafness that I can find is that by Jarvis[4] in 1923. He mentions the case of an adult patient who volunteered the information that the right ear which had been "stuffy" for ten years was clear, and that hearing was improved one week after x-ray treatment of the lingual tonsil. Jarvis found that prominent lymphoid nodules on the posterior pharyngeal wall and prominent lateral pharyngeal bands had decreased in size and redness forty-eight hours after exposure to roentgen rays. However, roentgen rays had been applied directly to the middle ear for treatment of tinnitus and chronic otitis media as early as 1904 by Joseph Beck of Chicago.[7] Jarvis further found that the type of patient subject to frequent head colds with more or less constant postnasal drip and frequent intervals of stuffiness in the ears with an accompanying impairment of hearing responded best to the use of roentgen rays. In the light of more modern knowledge, Jarvis' theory that the beneficial effect of x-rays in these cases was due to its effect on the bacterial content of the throat is not plausible. We have found x-ray useful in the same type of patient described by Jarvis. However, many of these patients are allergic and have evidence of functional autonomic imbalance. I submit that x-ray is helpful in these cases not only because it decreases the size of obstructive lymphoid tissue, but also reduces the function of the end organs of the autonomic nervous system. In other words, x-ray reduces the function of mucous and serous glands so that autonomic imbalance or allergy cannot stimulate these glands to hyperfunction. This is a similar action to that of chemical or electrical cautery of boggy wet inferior turbinates in vasomotor rhinitis. The number and effectiveness of secretory glands in the turbinates is reduced by cautery.

Degenerative changes in lymphocytes have been demonstrated a short time after exposure to x-ray radiation which produces degenerative and destructive tissue changes by ionization in the cells. Microscopic examination of adenoids which had been irradiated before removal shows that the action of the radiation is confined to the cells of the germinal centers. A few days after irradiation the cells show chromatolysis and fragmentation of the nuclei. Since the life span of the mature lymphocytes is very short—as low as twelve hours according to some authorities—the mass of the adenoid tissue gradually shrinks since there is no replacement from the damaged germinal centers by new lymphocytes. Schenck[10] has stated, and I quote, "More attention must be directed to the concomitant changes in the lymph channels and lymph vessels. Obstruction of lymph channels and lymph vessels occurs in the course of chronic infection by invasion of fibroblasts, constriction of fibrous tissue, and proliferation of endothelium within the lymph channels. Such obstruction to normal lymph flow must have significant effects upon contiguous lymph structures and the areas normally served by them. Irradiation produces striking effects upon the endothelium of the lymph vessels. Destruction of some endothelial cells

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occurs and the remaining cells appear contracted. The effect on occluded lymph vessels with multicellular walls is the conversion to channels with incomplete unicellular walls which permit the passage of lymph." Such action by x-ray radiation would eliminate obstructive passive lymph congestion in the auditory tube from lymphoid hyperplasia within the tube as well as in and about the auditory tube orifice. X-ray radiation has a cumulative effect. Its maximum effect is not fully apparent until about two weeks after the last treatment. For this reason we try to see the patient at the end of the x-ray treatments, and one, three, and twelve months after treatment. I have no pictures to show reduction in the size of lymphoid tissue after x-ray radiation, but by careful examination of the nasopharynx with the postnasal mirror and nasopharyngoscope using 2 per cent Pontocaine topically when necessary, we have seen gross changes occur after the radiation. Lymphoid tissue does decrease in size and auditory tube orifices blocked by a red, edematous mucosa and irregular hypertrophy of the torus tubarius have been seen to return to a normal appearance, wherein the torus is smooth and round, and the orifice itself presenting patency and a smooth pale mucosa in its floor and immediate edges. I have seen this normal appearance of auditory tube orifices in routine examination of the nasopharynges of patients who have no difficulties in their ears or throats.

The use of radium in the treatment of lymphoid hyperplasia of the nasopharynx as presented in extensive papers by Crowe, Burnam, Fowler, Boies, is not within the scope of this paper. An excellent symposium on Irradiation of Lymphoid Tissue of the Nasopharynx was given at the American Academy of Ophthalmology and Otolaryngology in October, 1949. It was shown that radium is of help in managing conduction deafness due to auditory obstruction from lymphoid hyperplasia. The dangers of handling radium was emphasized. Day pointed out in that symposium that the radium applicator was being used indiscriminately, and that this would result in more harm than good.

Roentgen therapy does have certain advantages over the use of radium in the management of deafness. Lampe[5] stated that the 50 mg. radium monel metal applicator inserted in the nasopharynx for twelve minutes delivers a dose of 4,428r at the surface. This dose is higher than the dose the experienced radiation therapist will use in the treatment of benign conditions. It is a cancerocidal dose used for lymphoid hyperplasia, which is a benign lesion. Lampe has stressed the possible danger of this dose not only to the patient but to the otologist who handles the radium. In roentgen therapy the dose delivered both at the skin and in the nasopharynx is below that of a cancerocidal dose. Our cases are treated by a certified roentgenologist who is well protected from the irradiation. Decker[1] urges that radium be used with great care and only by those qualified to use it. He believes that its scope of action is so small and so limited that if the lymphoid tissue extends beyond the small distance reached by the radium, success will not be achieved. For this reason he leans toward roentgen irradiation as being more inclusive and generally more effective than radium. Lymphoid tissue does extend along the auditory tube beyond the small distance reached by radium. Fowler[3] found microscopic evidence of lymphoid tissue in the peripheral portion of the auditory tubes and the middle ears of aviators killed during World War II. These microscopic slides were exhibited by the Army Institute of Pathology at the American Academy of Ophthalmology and Otolaryngology in 1949, and in many of these slides considerable collection of lymphoid masses were seen along the auditory tubes. Lindsay has stated before the Minnesota Academy of Ophthalmology and Otolaryngology that this tissue is not significant yet there is no reason why it cannot hypertrophy as well as the lymphoid tissue in and about the auditory tube orifice. In the work of Haines and Harris with submarine trainees during the last war it was found that 25 per cent of submariners who had open tubal orifices as seen by the nasopharyngoscope suffered grade-four damage to the middle ears in pressure tests. This would lend evidence to the fact that obstruction can be located in the peripheral portion of the auditory tube beyond the scope of action of radium. Roentgen therapy, however, will reach this obstruction. Farrior[2] has described various tests to determine the degree of auditory obstruction. These show peripheral auditory obstruction in many cases with no visible evidence of obstruction at the auditory tube orifice. Farrior states that roentgen radiation is indicated in these cases. Our own series of cases include three patients with conduction deafness from auditory obstruction and yet with no evidence of obstruction at the auditory tube orifice as seen by the postnasal mirror and the nasopharyngoscope. Their hearing was definitely improved by the use of roentgen therapy. Besides the very limited scope of action by radium, namely not over one cm., I am sure, we are all familiar with the great difficulty in placing the radium applicator immediately at the auditory tube orifice. In addition to lymphoid tissue existing in the periphery of the auditory tube, Robison has proposed that a nasopharyngeal lymph node in the region which the auditory tube traverses, can cause pressure on and displacement of the lumen of the auditory tube. Only roentgen therapy, of course, would reach such a lymph node. Other advantages of roentgen therapy over the use of radium are the relative ease of roentgen therapy and the freedom from fright that is connected with the insertion of the radium applicator.

Certain disadvantages or objections to the use of roentgen therapy have been raised in the past. One of these is that roentgen therapy will cause pituitary dysfunction. However, by examining a skull and considering the technique used, it can be easily seen that the pituitary gland is well above the path of the x-rays. Another objection is that x-ray must penetrate normal tissue to reach the nasopharynx and auditory tube. However, the normal tissue penetrated can withstand a much higher dose of x-ray than that used to shrink lymphoid tissue. A third objection is that x-ray will harm ossification centers. The only ossification center that receives any exposure to the x-ray is that in the condyle of the mandible. This center is united at the fourth month of fetal life.

Possible undesirable effects of roentgen therapy are dryness of the throat, swelling of the parotid gland, and nausea and vomiting. These effects have been seen occasionally but they have been transitory in duration. No permanent harmful effects have been seen from roentgen therapy.

Roentgen therapy in our cases is given by a certified roentgenologist. In the technique of treatment he places a rubberized lead shield with a 6 x 8 cm. portal over one side of the patient's head. The center of this portal is located at the angle of the mandible. The roentgen rays are directed inwards and slightly upwards through this portal to reach the entire auditory tube as well as the nasopharynx. Two hundred kilovolts are used. The target skin distance is 50 cm. and the rays are filtered by .5 millimeters of copper and 1 millimeter of aluminum. In adults a total dosage of 600r measured in air at the skin is given on each side of the head in four divided doses given over a two-week period. In children the total dose is 400r on each side. This gives a total dose of 318 to 366r at the nasopharynx in adults and 212 to 288r at the nasopharynx in children. Considering the cross-firing principle this dose is adequate to reduce lymphoid tissue in size. It is also a safe dose.

Results of the use of roentgen therapy in the management of conduction deafness have been good. In 1948 Youngs[11] reported 116 cases of conduction deafness treated with roentgen therapy. These patients varied in age from three to sixty-two years. Forty-six or 39.6 per cent of these regained normal hearing after roentgen therapy as determined by periodic audiograms, whispered voice, and tuning fork tests. Twenty-five or 21.5 per cent received marked improvement in hearing. Twenty-three or 19.8 per cent received some improvement and twenty-two or 18.9 per cent received no improvement of hearing. Richardson's[8] records based on 600 cases showed improvement from a slight degree to a complete recovery of normal hearing in not less than 60 per cent of a mixed group of cases. In 1937, O'Brien[6] reported seventy-three cases of chronic catarrhal deafness of a group of 140 with varying degrees of deafness as improved by roentgen therapy. In 1949, Rosenberger[9] reported twenty patients with impaired hearing treated with roentgen irradiation. One-third of these had significant benefit from such treatment after standard otologic treatment had proved ineffective.

Since March, 1949, 109 patients have received roentgen therapy to the nasopharynx at the Mankato Clinic. Several of these patients have been referred for treatment by doctors outside the Clinic, and their records are not available. Some of these patients have been given roentgen therapy for reasons other than auditory tube obstruction with conduction deafness. Fifty-four of these patients were given roentgen therapy because of conduction deafness secondary to auditory tube obstruction and with or without evidence of lymphoid hyperplasia. Thirty-two of these fifty-four patients returned for follow-up study. These thirty-two patients had had conduction deafness from about three months to about ten years and varied in age from five to fifty-three years. Most of them had lymphoid hyperplasia in and about the auditory tube orifice and all of them had signs of auditory tube obstruction. They had repeated audiograms, tuning fork tests, whispered voice tests, and nasopharyngeal examinations by the postnasal mirror and nasopharyngoscope before and up to one year after roentgen therapy. Study of their records shows that of these thirty-two patients eighteen or 56.25 per cent regained normal hearing after roentgen therapy, six or 18.75 received marked improvement in hearing, three or 9.37 per cent received slight improvement in hearing, and five or 15.62 per cent experienced no change in hearing after roentgen therapy. In all of these patients, examined repeatedly one month to one year after roentgen therapy, there was either complete recovery of the normal appearance of the auditory tube orifice as previously described, or marked reduction of the size of lymphoid tissue in and about the auditory tube orifice. Six patients not included in this series of thirty-two had a recurrent central adenoid mass associated with lymphoid hyperplasia in and about the auditory tube orifice, and conduction deafness. The central adenoid mass was removed surgically, myringotomy and spot suction performed, and roentgen therapy followed operation procedures with good results and recovery of normal hearing. These six patients are not included in the above series of thirty-two cases because it is not certain whether secondary adenoidectomy, myringotomy, and spot suction alone or operation plus roentgen therapy was responsible for the recovery of hearing. Many patients in addition to improved hearing after roentgen therapy received improvement in other symptoms. They reported fewer colds, earaches, sore throats, nasal obstruction, and a return of a clear feeling in their ears. Patients with a fluid level seen through their ear drums, and patients with dull lusterless retracted thickened ear drums regained a normal appearing ear drum after roentgen therapy.

A few case reports should be of interest:

Case 1.—A six-year-old boy (R.S.) was first seen November 29, 1950. He had had frequent attacks of otitis media and colds. His hearing was impaired even between colds. Examination revealed dull lusterless retracted ear drums, a well-performed tonsillectomy, and lymphoid hyperplasia in and about the auditory tube orifices. His audiogram returned to normal two months after roentgen therapy. His ear drums and auditory tube orifices had a normal appearance at this time also. To date, one year after treatment, his colds have been less in severity and frequency, and he has had no otitis media accompanying these colds. His hearing is normal, and his speech has been clear since roentgen therapy, according to the mother.

Case 2.—A nineteen-year-old woman (Mrs. G. W.) was first seen on August 30, 1949. She had complained of hearing difficulty for several years. Examination revealed auditory tube orifices blocked by lymphoid hyperplasia, tonsils and adenoids removed, dull retracted ear drums, negative Rinné, prolonged Schwabach, and impaired hearing by audiometric test. Only temporary improvement in hearing could be obtained by eustachian tube inflation. She was given 600r of roentgen therapy, and one month after this she happily reported that she could hear the whistle blow where she worked for the first time. Audiogram confirmed improvement in hearing. Her auditory tube orifices and ear drums returned to normal appearance, and audiogram at two months and two years after roentgen therapy showed sustained marked improvement in hearing.

Case 3.—A thirteen-year-old girl (M. M.) was first seen on August 5, 1949. She had had frequent sore throats, colds, fullness in the ears, and trouble hearing, especially in the left ear. Examination disclosed tonsils and adenoids removed, lymphoid hyperplasia in and around the auditory tube orifices especially on the left side, excessive lymphoid follicles on the posterior pharyngeal wall, and hearing impairment more marked in the left ear. One month after completion of roentgen therapy she stated that her ears felt clear. Audiogram showed improvement in hearing more so in the left ear and her auditory tube orifices appeared normal.

Case 4.—A fourteen-year-old boy (J. W.) was first seen on June 16, 1949. He had had chronic hearing impairment for two to three years, and a history of allergy. Examination disclosed allergic rhinitis, lymphoid hyperplasia in and about the auditory tube orifices, tonsils and adenoids removed, marked excess lymphoid follicles on the postpharyngeal wall, dull, retracted ear drums, and hearing impairment more marked in the left ear. Roentgen therapy was started and two weeks after the last treatment, his audiogram was normal, his ear drums and eustachian tube orifices appeared normal, and marked reduction in the size of lymphoid follicles on the postpharyngeal wall was seen. Recent conversation with the mother revealed that this boy's hearing recovery was sustained.

Case 5.—A five-year-old boy (S. P.) was first seen on November 16, 1948. This boy had had frequent attacks of otitis media with discharge, very frequent colds, and chronic hearing trouble for one to two years. His tonsils and adenoids had been removed at three years of age. Examination disclosed a red boggy nasal mucosa, red excessive lymphoid tissue in the lateral pharyngeal bands extending into and around the auditory tube orifices, dull lusterless ear drums, and hearing impairment by whispered voice and audiogram. Audiogram and whispered voice showed good improvement three weeks after the last x-ray treatment, and this continued to normal hearing. The mother reported one year later that the boy was getting along much better after x-ray. His breathing was better, and he had had fewer colds and much less ear trouble. Nasopharyngoscopy one year later showed normal auditory tube orifices.

Case 6.—This case is not one of lymphoid hyperplasia, but it proves that x-ray radiation can reach the auditory tubes and nasopharynx and alleviate obstruction therein. A sixty-one-year-old woman was first seen on December 15, 1950. This woman had had blocking and trouble hearing in the left ear for nine months, chronic sore throat for six months, and recent bleeding from the left side of the nose, and weight loss. She had a characteristic odor about her. Having detected the odor of much carcinoma during my residency training at the University, I immediately suspected carcinoma of the nasopharynx. Squamous cell carcinoma around the left auditory tube orifice was confirmed by inspection and biopsy. The left ear drum showed characteristic signs of secretory otitis media with retraction, prominence of the malleus, and diffuse amber color of the drum. Deep roentgen therapy in cancerocidal doses was given before a radium plaque was inserted in the nasopharynx, and the important point is that the left ear cleared completely, and hearing returned to normal after roentgen therapy, and before the radium was inserted.

Conclusions

1. A discussion of the use of roentgen therapy in the management of conduction deafness has been given and the experience with this therapy has been reviewed.

2. Roentgen therapy has a definite and useful place in the management of deafness secondary to auditory tube obstruction from lymphoid hyperplasia.

3. No permanent harmful effects from roentgen therapy have occurred when given by an experienced radiation therapist.

4. The otolaryngologist and roentgenologist must work together in this form of therapy.

Bibliography

1. Decker, R. M.: Relation of the eustachian tube to chronic progressive deafness. Arch. Otolaryng., 36:926 (Dec.) 1942.
2. Farrior, J. B.: Lymphoid eustachian salpingitis: its effect on tubal patency. Arch. Otolaryng., 48:2 (Aug.) 1948.
3. Fowler, E. P., Jr.: Irradiation of eustachian tube. Arch. Otolaryng., 43:1 (Jan.) 1946.
4. Jarvis, D. C.: Effect of small doses of roentgen rays in certain forms of impaired hearing. Am. J. Roentgenol., 10:202 (Mar.) 1923.
5. Lampe, Isadore: Potential biologic dangers of nasopharyngeal beta irradiations; symposium: irradiation of lymphoid tissue in the nasopharynx. Tr. Am. Acad. Ophth. & Otol. (May-June) 1950.
6. O'Brien, F. W.: Treatment of selected cases of chronic catarrhal deafness by x-rays. Radiology, 28:1-4 (Jan.) 1937.
7. O'Brien, F. W.: The treatment of selected cases of chronic catarrhal deafness by x-rays. Radiology, 28:1-4 (Jan.) 1937.
8. Richardson, J. J.: X-ray as an adjuvant in the treatment of impaired hearing. Internat. J. Surg., 36:510, 1923.
9. Rosenberger, H. C.: Radiation therapy for conductive deafness. Arch. Otolaryng., 49: (May) 1949.
10. Schenck, Harry P.: The anatomy, physiology and pathology of nasopharyngeal lymphoid tissue: symposium: irradiation of lymphoid tissue in the nasopharynx. Tr. Am. Acad. Ophth. & Otol. (May-June) 1950.
11. Youngs, N. A., and Woutat, P. H.: Treatment of certain types of deafness by roentgen ray therapy. Ann. Otol. Rhin. & Laryng., 57:984-991 (Dec.) 1948.

SIMPLE PROCTOLOGIC PROCEDURES

(Continued from Page 1038)

postoperative period. Unless the primary fistulous opening is eliminated, the fistula will recur. The sphincter fibres which overlie the fistulous tract must be incised. However, if the wounds are treated properly during the healing phase, one can expect very little disability from the severed sphincter fibres.

Summary

1. The time has come when proctoscopic examinations must be performed by all physicians interested in arriving at accurate diagnoses of lesions in the rectum and lower sigmoid colon.

2. The early diagnosis and eradication of polyps in the rectum and lower sigmoid colon will solve a large part of our cancer problem.

3. A large number of troublesome lesions of the anorectal region can be treated by simple surgical procedures. Accuracy in diagnosis, plus a basic and accurate knowledge of the anatomy and physiology of the involved structures, is essential for the proper treatment of these lesions.

ANTICOAGULANTS IN CARDIOVASCULAR DISEASE

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"Thromboembolism is not a disease or a syndrome. It is a fundamental pathologic process common to a variety of disorders. It is the considered opinion of competent observers that we are today only crossing the threshold into a vast field of clinical pathology which evolves from the formation of intravascular clots."[5]

THIS STATEMENT from the most important contributor to a rapidly advancing field of clinical knowledge emphasizes the usefulness of anticoagulants over a broad spectrum. The outlook for patients suffering from such conditions as pulmonary embolism, venous thrombosis, arterial occlusion due to thrombosis or embolism, and congestive heart failure has been materially altered by the availability of these substances.

The first suggestion that intravascular clotting and the serious results thereof could be controlled came with the discovery of heparin and its introduction in 1938 in the treatment of thrombosis. With the purification of this substance to eliminate the early toxic effects due to impurities, numerous investigators established its usefulness in therapy. Meanwhile, the discovery of the first of the cumarin products at the University of Wisconsin introduced an anticoagulant which had many advantages. This progress, together with the more widespread recognition of thromboembolic phenomena, set the stage for the remarkable work with these substances which followed.

Of major importance in this therapy is the use of the anticoagulants in conditions affecting the heart. These include peripheral thromboembolic conditions, coronary occlusion with myocardial infarction, rheumatic heart disease with auricular fibrillation and embolism and congestive heart failure, conditions in which this type of treatment has been widely accepted. Peripheral vascular conditions associated with thromboembolism frequently complicate heart disease and contribute to the clinical picture as the result of lodgement of emboli originating in the heart or as the frequently unrecognized origin of emboli, especially to the lungs, occurring during the course of heart disease. Sudden peripheral arterial occlusion due to thrombosis or embolism, thrombophlebitis, and phlebothrombosis carry serious prognostic implications and should be treated with the anticoagulants both in the acute attack and prophylactically. These vascular complications occur frequently in other than cardiac conditions in which patients of older age groups must be confined to bed or similar inactivity for prolonged periods. Anticoagulant management of these conditions with its resultant marked decrease in mortality makes it necessary to search for them more diligently than has been done in the past.

In 1942 significant reports began to appear in the literature dealing with the problem of thromboembolism and the use of dicumarol in coronary thrombosis. Statistical studies concerning the significance of the problem soon followed. Wartman and Hellerstein,[9] reporting 160 cases of myocardial infarction studied at autopsy, found 38 per cent to have multiple fresh, or fresh and old infarcts. Mural thrombi were found in 34 per cent of those patients who had a single infarct and 48.5 per cent of those who had multiple attacks. These showed mortality figures for the acute attack varying considerably, from 50 per cent in early reports, to 8 per cent in some later ones. Averaging the figures on control patients in ten communications on dicumarol therapy published since 1946, the mortality is shown to be 31.1 per cent of a total of 1,180 cases. In addition to this it also became evident, after the importance of thromboembolic complications in infarction became known, that these were an important factor in prognosis. Clinically recognized secondary myocardial thrombosis during the immediate convalescence from a previous infarction occurred with varying but significant frequency. These always carried a higher mortality than the earlier ones.

Peripheral thromboembolic lesions complicating coronary thrombosis may be easily overlooked as is seen by the increasing frequency with which they are being reported, especially at autopsy. Clinically, a series assembled from the literature[2] revealed that 11.5 per cent of coronary thrombosis patients had them, while reports from autop-

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sy investigation showed an incidence of 25 to 70 per cent of such lesions. Hellerstein and Martin[3] showed that peripheral thromboembolic lesions occurred in 55 per cent of cases in which mural thrombi were demonstrated as compared with 39 per cent of those in which they were not. The difficulty of recognizing all of the thromboembolic lesions clinically is shown in the report of 200 cases by Eppinger and Kennedy[2] in which 8.3 per cent of patients with acute coronary thrombosis dying during the subacute period showed them at autopsy, but in only 4.8 per cent were they recognized clinically. Obviously the degree of clinical suspicion as well as the thoroughness of postmortem examination affect these figures materially. Peripheral thromboembolic lesions occur in the following order of frequency: lung 23.5 per cent, kidneys 14.4 per cent, spleen 8.8 per cent, extremities, 5.5 per cent.

The results of these and other studies encouraged the use of anticoagulant therapy and led to favorable reports but the numbers of cases were insufficient to warrant final conclusions. Cognizant of this, the American Heart Association established a co-operative project to study the problem and a committee consisting of investigators from sixteen leading hospitals was appointed for this purpose. In 1948, Wright, Marple and Beck[10] reported for this committee on the results obtained in the treatment with dicumarol of 1,031 patients who had coronary occlusion with myocardial infarction. This report showed a mortality of 15 per cent in dicumarol treated patients compared with 25 per cent in the control series. It also demonstrated that the greatest improvement was in those cases which showed thromboembolic complications prior to death, that the reduction in death rate was chiefly effected by control of thromboembolism. Death rates by weeks of illness were highest in the first two weeks, but still considerable in the third and fourth weeks. Greatest benefits were shown in patients over sixty years, not only in saving lives, but also in preventing serious permanent disabilities such as hemiplegia, chronic venous insufficiency, or residual myocardial damage (following myocardial infarction). Thromboembolic complications occurred in 25 per cent of control cases and 6 per cent of cases effectively treated with anticoagulants. These complications were new infarcts, extension of infarcts, pulmonary, cerebral or peripheral emboli and venous thrombosis. The results of this study have been widely accepted as justifying the conclusion that anticoagulant therapy should be given to all patients with coronary thrombosis and myocardial infarction unless specific contraindications exist.

In addition to coronary thrombosis there are two other primary heart conditions in which anticoagulant therapy is indicated. Patients having rheumatic heart disease with auricular fibrillation occasionally develop multiple peripheral emboli from mural thrombi. These patients, subject at any time to permanently crippling embolic disease, should have anticoagulant therapy with the cumarin compounds. Wright and Foley[11,12] have described a series of patients so treated and have reported their results in these cases as truly dramatic. The other condition is that of congestive heart failure in which thrombi frequently occur due to slowing of the blood stream. The results obtained by Anderson and Hull[1] and other workers indicate a definite decrease in the incidence of thromboembolic phenomena as well as a resulting decrease in mortality. This is a condition in which the anticoagulants must be used with more than ordinary caution because of the increased sensitivity to them in the presence of impaired liver function, so commonly found in congestive failure.

Contraindications to the use of anticoagulants may be listed as follows:

1. *Hypoprothrombinemia,* usually associated with liver or pancreatic disease, or intestinal diarrheal disease. These conditions are marked by a deficient synthesis of prothrombin due to an inability to use Vitamin K.
2. *Vitamin C deficiency,* animal experiments on which indicate that the effect of a given dose of dicumarol is enhanced and prolonged. Wright[5] maintains that all patients should be given Vitamin C with anticoagulant therapy.
3. *Renal insufficiency,* in which exaggerated dicumarol effects result. The reason for this effect is not clear.
4. *Blood dyscrasias,* purpura, leukemia, aplastic anemia, in which bleeding tends to occur. In polycythemia it may be used with caution.
5. *Immediate postsurgical problems,* ulcers, especially of the gastrointestinal tract, and late pregnancy, in which massive hemorrhages may occur.
6. *Subacute bacterial endocarditis,* in which the risk of hemorrhage seen in this disease may be increased.

Administration of anticoagulants in acute problems should be started with heparin the action of which is almost immediate. It must be given parenterally, by continuous drip or intermittent administration intravenously, or by intermittent injection of an aqueous solution or a suspension in a slowly absorbed preparation as Pitkin's menstruum or as depo-heparin intramuscularly or subcutaneously. The simplest method, and most comfortable for the patient, is the intermittent intravenous injection of 50-75 mgm. of heparin every four hours. Heparin in Pitkin's menstruum may be given in average doses of 300 mgm. daily. Depo-heparin is given in doses of 200 mgm. twice daily, watching the coagulation time before each injection. If the latter exceeds twenty minutes the next dose is omitted or postponed. Objections to Pitkin's menstruums are the local pain which it usually produces and the variable effect it has on the coagulation time.

With the start of heparin, the prothrombin time is determined, and if normal, 200-300 mgm. dicumarol is given orally, followed by 100 mgm. daily until the prothrombin time reaches twice the control. The heparin is then stopped and the dicumarol continued in doses designed to keep the prothrombin activity at that level. Dicumarol acts by interfering with the synthesis of prothrombin in the liver and has the definite advantages of being cheap and orally effective. It must be remembered in judging dosage that it takes from forty-eight to seventy-two hours for it to become fully effective, and that the action persists for two to seven days after discontinuing the preparation. Also the response in individuals varies, as does the response in the same individual. Within a week the needs of the average patient can be ascertained but because of these varying factors the prothrombin time must be determined daily for a considerable period. Later, if the administration is prolonged it is usually possible to extend the intervals between prothrombin estimations. While several techniques have been recommended for determining prothrombin times, the Link-Shapiro modification of the Quick method is most widely used, expressed in seconds as compared with the control time or the percentage of prothrombin activity.

The average necessary maintenance dose is 50 mgm. daily. Occasional hyporeactors may require up to 200 mgm. daily, while hyper-reactors, sometimes seen in cases with renal or hepatic damage or chronic myocardial insufficiency, require less. Some observers have recommended larger doses two to three times weekly, but the use of smaller daily doses is more widely accepted. Where the prothrombin time fluctuates erratically, divided doses of dicumarol or the use of one quart of milk daily has been recommended to increase stability. Therapy is continued for 20 to thirty days after the thromboembolic episode with the object of keeping the prothrombin time at two to two and a half times the control as recommended by Nichol.[6] The method of administration here outlined is applicable as well to any condition in which prompt anticoagulant effect is desired.

The anticoagulants have been non-toxic except for the hemorrhagic complications which with increasing experience have presented no risk that is unjustified. These manifestations such as epistaxis, minor hemoptysis, bruising and the appearance of erythrocytes in the urine have been infrequent and usually unimportant. The latter, if watched for, may foretell the occurrence of the only really important major complication, hematuria. Several occurrences of this have been seen, but in instances where lapses in observation occurred and where symptoms pointing to probable renal involvement should have been a warning to stop therapy. These consisted of low back and groin pain of aching type, occurring several days before gross hematuria and renal colic appeared. While this caused considerable discomfort for several days, complete healing with no sign of residual renal damage occurred. Serious hemorrhage, then, is usually a sign of poor management, or the overlooking of ulcerative lesions, usually gastrointestinal, from which bleeding occurred.

With the onset of hemorrhage, the anticoagulant must be stopped. If not serious, the condition will soon correct itself. If marked, transfusion should be instituted, replenishing the patient's prothrombin. The latter is used up rather quickly and the transfusion should be repeated at four- to six-hour intervals until the prothrombin time is decreased. At the same time Vitamin K is injected intravenously in the form of Menadione, Synkavite, Hykinone or similar preparation, in doses of 60-72 mgm. every four hours until the prothrombin time returns to normal. Even with these measures considerable time, several days, may elapse before the condition is corrected. The Vitamin K preparations do not lessen the hypoprothrombinemia but counteract it and control the bleeding. Recent studies[4] indicate that

Vitamin K_1 oxide acts much more rapidly in restoring prothrombin times to safe levels.

Aware of the importance of recurring coronary thrombosis after an attack, Nichol and Borg[7] set out to determine the feasibilty of long-term ambulatory dicumarol therapy following an acute attack and presented a preliminary report on their results in 1950. All patients intelligent enough to understand and co-operate with the program were continued on dicumarol therapy with the object of keeping the prothrombin time at a level approximately twice the control, after the aims of the program had been explained to them. They were told to be on the alert for any untoward symptoms or evidences of bleeding, on the occurrence of which they were to discontinue the drug. They were also instructed to stop the drug during the occurrence of any gastrointestinal disorder on the theory that undetected liver disturbance might be present. Prothrombin times were checked at intervals up to two weeks. These results indicated that the method is a feasible one. Criticism that it would tend to make patients too heart-conscious and provoke and increase cardiac neurosis has seemed unjustified. In fact it seems to have been a reassuring program to most of them and there have been no serious problems of that type. The patients seem willing and anxious to partake in a program designed to give them protection against future trouble. Since the 1950 report, the number of patients in this study has been considerably augmented and continuance of the program has been encouraged.

A report on subsequent experience was presented before the recent meeting of the American Heart Association. In this, the following data on 224 patients which are included in the joint program and have been on anticoagulant treatment for two to fifty-nine months were presented. A hundred and twenty-six patients have continued therapy since its inception, and sixty-four patients have discontinued treatment voluntarily. Peripheral thromboembolic phenomena have not been observed in this group.

Hemorrhagic complications have occurred in ninety-four of the entire group. Fifty-three of these were minor such as epistaxis, purpura, hemoptysis, bleeding gums. Forty-one were classed as major hemorrhages, notably gross hematuria in twenty-two patients, gastrointestinal hemorrhage in four patients and hematoma in five patients. All of these recovered without sequelae. With increased experience in management and improved alerting of patients for the early appearances of complications, the latter are now relatively unimportant. No major hemorrhages have been observed in this writer's experience during the past three years.

Thirty-four patients have died while under treatment. Autopsies were performed on fifteen of these, in which four showed fresh infarction, five showed subendocardial fibrosis, and six showed old healed infarcts. Among those not examined postmortem were ten patients who died suddenly, two who died within 48 hours after an attack of protracted coronary insufficiency (not proved infarction), five who died from congestive heart failure, and two from probable cerebrovascular accidents.

It will take a considerably extended and prolonged study of this type to justify drawing significant conclusions. Until better studies of the expected course in a series of first infarctions are available, the value of this procedure must be regarded conservatively. The high percentage of survivors, however, together with the low percentage of recurrence of coronary thrombosis in this series as compared with the prognosis in patients not treated with long-term anticoagulants, suggests the desirability of this type of management of patients with myocardial infarction.

When it is recognized that there is much about intravascular clotting and anticoagulants that is not understood, it is not surprising that failures and even deaths with this treatment occasionally result. Analysis of these shows that usually the blame must be put on management, due to: (1) delay in the institution of therapy; (2) inadequate prothrombin blood levels; or (3) premature discontinuance of medication. If these factors can be controlled, failures will be few, yet there will be found isolated rare instances in which thromboembolic phenomena may occur in patients supposedly well handled.

Since the discovery of dicumarol with the recognition that it is not the perfect anticoagulant, search has been, is being, and will continue to be made for a more satisfactory product. To date two preparations have been made available to the profession, both satisfactory anticoagulants. Tromexan has the advantage of reaching its peak activity more quickly, in twelve to eighteen hours, with the action of a dose subsiding in about forty-eight to sixty hours. Maintenance dose varies from 600-900 mgm. daily. Cyclocumarol recently has become available with more rapid onset of effect than dicumarol and more prolonged action. These have been regarded as advantages by some. The average initial dose is 100-200 mgm., with maintenance doses averaging 25 mgm. It is difficult to recognize important advantages over dicumarol in the later products. Serious hemorrhagic complications should not occur in well managed patients. Where they do, the same procedures for treatment apply for all preparations. On the other hand, the cheapness of dicumarol has much to recommend it, especially if the substance is used over a long period of time, and if the physician is well versed in its action it will be found to be a satisfactory product.

Conclusion

1. The anticoagulants have opened an important new field of treatment in heart disease.

2. Mortality and morbidity in coronary thrombosis, congestive heart failure and rheumatic heart disease complicated by multiple emboli have been markedly improved.

3. Long-term anticoagulant therapy has been proved feasible and gives promise of considerable value in decreasing morbidity and mortality in patients who have recovered from myocardial infarction.

4. Anticoagulants are not essentially toxic in themselves but poorly managed use of them can lead to hemorrhagic complications.

5. The use of anticoagulants requires the utmost of vigilance and intelligent knowledge as to their action and no physician who is unwilling to accept this should assume the responsibility of their use.

Bibliography

1. Anderson, G. M., and Hull, E.: The use of dicumarol as an adjunct to the treatment of congestive heart failure. South. M. J., 41:365, 1948.
2. Eppinger, E. C., and Kennedy, J. A.: The cause of death in coronary thrombosis, with special reference to pulmonary embolism. Am. J. M. Sc., 195:104, 1938.
3. Hellerstein, H. K., and Martin, J. W.: Incidence of thromboembolic complications accompanying myocardial infarction. Am. Heart J., 33:343, 1947.
4. James, D. F.; Bennett, I. L., Jr.; Scheinberg, P., and Butler, J. J.: Clinical studies on dicumarol hypoprothrombinemia and vitamin k preparations. Arch. Int. Med., 83:632, 1949.
5. Marple, C. D., and Wright, I. S.: Thromboembolic conditions and their treatment with anticoagulants. Springfield, Ill.: Charles C Thomas, 1950.
6. Nichol, E. S.: Treatment of acute coronary thrombosis with dicumarol. Am. Heart J., 33:722, 1947.
7. Nichol, E. S., and Borg, J. F.: Long-term dicumarol therapy to prevent recurrent coronary artery thrombosis. Circulation, 1:1097, 1950.
8. Nichol, E. S., and Borg, J. F.: To be published.
9. Wartman, W. B., and Hellerstein, H. K.: The incidence of heart disease in 2000 autopsies. Ann. Int. Med., 28:41, 1948.
10. Wright, I. S.; Marple, C. D., and Beck, D. H.: Report of the committee for the evaluation of anticoagulants in the treatment of coronary thrombosis with myocardial infarction. Am. Heart J., 36:801, 1948.
11. Wright, I. S., and Foley, W. T.: Use of anticoagulants in the treatment of heart disease. Am. J. Med., 3:718, 1947.
12. Wright, I. S., and Foley, W. T.: Long-term anticoagulant therapy for cardiovascular diseases. Am. J. Med. Sc., 217:136, 1949.

NEW DRUGS IN THE TREATMENT OF HYPERTENSION

(Continued from Page 1024)

Because undesirable reactions can occur, it would seem advisable to institute this program of treatment only for the more severe forms of hypertensive vascular disease and only if the program can be started in a hospital under careful supervision of a physician and continued under the close supervision of the physician.

References

1. Allen, E. V.; Bannon, W. G.; Upson, Mark, Jr.; Huizenga, K. A.; Bastron, J. A., and Waugh, J. M.: A new sympatholytic and adrenolytic drug. Clinical studies on pheochromocytoma and essential hypertension. Tr. A. Am. Physicians, 64:109-120, 1951.
2. Bello, C. T., and Soloff, L. A.: The effects of oral 688-A on the blood pressure of hypertensive subjects. Abstract No. 9, Proceedings of the National Meeting of the American Federation for Clinical Research, Atlantic City, New Jersey, 1952.
3. Josephs, I. L.: Clinical observations on the hypotensive effect of certain dihydrogenated alkaloids of ergot in human beings. Am. Pract., 4:71-74 (Oct.) 1949.
4. Kaiser, K., and Martini, P.: über die wirkung der dihydroalkaloide des mutterkorns bei der hypertonie. Deutsche med. Wchnschr., 75:1566-1568 (Nov. 17) 1950.
5. Meilman, E.: The use of protoveratrine in hypertensive emergencies and chronic hypertension. Abstract No. 19, Program of Twenty-fifth Scientific Sessions of the American Heart Association, Cleveland, Ohio (Apr. 18-19) 1952.
6. Page, I. H.: Treatment of essential and malignant hypertension. J.A.M.A., 147:1311-1318 (Dec. 1) 1951.
7. Schroeder, H. A.: Control of hypertension by hexamethonium and 1-hydrazinophthalazine; preliminary observations. Arch. Int. Med., 89:523-540 (Apr.) 1952.
8. Schroeder, H. A.: The control of hypertension. Abstract No. 32, Program of the Twenty-fifth Scientific Sessions of the American Heart Association, Cleveland, Ohio, (Apr. 18-19) 1952.

FUNCTIONAL UTERINE BLEEDING

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ABNORMAL UTERINE bleeding has been discussed many ways. I should like to restrict the subject to problems arising in the sexually active woman and related to abnormalities in the physiology of the menstrual cycle.

The physiology of the normal cycle must be considered before approaching the abnormal. In brief, the cycle must be considered as two phases ending either in pregnancy or menstruation. The first, or proliferative phase, is the result of the estrogenic hormones secreted by the developing follicle. During this portion of the cycle, the cells of the glands and stroma increase in number. This results in a thickened endometrium containing fairly straight glands showing little secretory activity. The luminal borders are smooth, the nuclei are usually more or less centrally located and the amount of cytoplasm is minimal. Following ovulation, the endometrium is affected in a striking fashion by progesterone, the hormone produced by the corpus luteum. Estrogenic hormones are maintained at approximately the same level throughout the entire cycle. The active growth or proliferation seen in the first phase now ceases and is replaced by physiological changes in the stroma and glands in preparation for nidation. The second, or secretory phase, is recognized histologically by the huge increase of cell size in both stroma and gland. The glandular cells are swollen and begin active secretion. The increase in cell size causes the gland to bend and turn in a tortuous fashion, straightening out only near the surface of the endometrium where the stromal cells are prominent. Should pregnancy result, secretory activity is accentuated. Lacking this, the endometrium is cast off over a period of three or four days. The entire cycle is then repeated. The regular shedding of endometrium is the result of estrogen and progesterone withdrawal.

The rhythmic pattern of the menstrual cycle can be interrupted during either phase, resulting in abnormal uterine bleeding. Bleeding of this nature, in other words functional bleeding, can be accurately diagnosed histologically and explained hormonologically.

Hyperplasia of the endometrium, the more frequently occuring lesion, is related to the first, or proliferative phase and is the result of continued estrogenic hormone effect uninterrupted by the effect of progesterone. The basic cause is the failure of ovulation due to an unexplained breakdown in the normal pituitary-ovarian relationship. It is not known why the pituitary gland suddenly fails to bring about ovulation and luteinization. Curiously enough, one cannot successfully produce ovulation and luteinization by the administration of anterior pituitary substances in human beings. This explains the unsuccessful results in the use of gonadotrophic hormones in the treatment of hyperplasia.

The greatest incidence of hyperplasia is in the young girl and the woman approaching the menopause. The degree of disability varies widely. Some patients describe long intervals of inactivity followed by uterine bleeding which may be prolonged, heavy, or both. On the other hand, the bleeding phase may be almost constant with only a few days during which the patient will be free of blood loss. The usual symptoms are those resulting from acute or chronic blood loss. The findings on physical examination are not unusual, although some authors have noted a rather high incidence of enlarged, cystic ovaries.

While the history is often very suggestive, it is unwise to begin definitive therapy until the diagnosis has been established histologically. Not infrequently, curettage will reveal some other pathological finding uninfluenced by medical therapy. These lesions vary from malignancy involving the endometrium or the cervical canal to the lesser important incomplete abortion or polyp. Once the diagnosis is established by curettage, one is justified in following the course of the disease by the use of the endometrial biopsy. In the older patient, do not forget the danger of carcinoma developing even though a diagnosis of hyperplasia has been made previously by curettage. Thus, if too great a lapse of time exists between the original curettage and the recurrence of irregular bleeding, do not hesitate to recurette.

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

The management of hyperplasia can be roughly divided into two categories. First, efforts are directed toward the control of bleeding. Second, attempts are made to re-establish normal, regularly occurring, menstrual periods. Profuse bleeding is best controlled by curettage. This should be the method where no previous histological diagnosis has been made, or when the bleeding is of proportions sufficient to produce marked anemia or shock. Patients previously curetted who are not bleeding to an alarming degree may be treated hormonologically. Just about every individual interested in hyperplasia has a method which he believes superior. Since the methods vary widely, it is apparent that the perfect method is not available. Bleeding can be controlled with testosterone, stilbestrol, the true estrogens, and with progesterone. Some methods employ combinations of two or more hormones with apparent success. It is not my purpose to outline the various procedures, but instead to present one approach to the problem which is based upon the physiology of the menstrual cycle. It is admitted that no single method will be successful in all cases, therefore anyone handling hyperplasia is justified in trying different methods when the initial effort is without success.

Since the bleeding phase in hyperplasia is the result of estrogen withdrawal, the re-establishment of available estrogenic substances should have a healing effect. This is true. Large doses of estrogens will cause cessation of bleeding. This can be done by the oral, intramuscular, or intravenous administration of estrogens. The latter may well produce a quicker response, but my own personal experience is limited. The following routine has proven adequate in most cases. The patient is given 40,000 International Units of crystalline estrogenic substance intramuscularly. This is followed by the oral administration of five milligrams of conjugated estrogens daily for five days. This usually stops the bleeding. On the third day of therapy, 100 mg. of progesterone is given intramuscularly. Five to seven days after the administration of progesterone, the patient will bleed again for about the same length of time associated with a normal menstrual period. We have produced a secretory endometrium which is shed after the withdrawal of the hormone therapy. Hormone therapy following this physiological curettage is directed toward the re-establishment of rhythmic bleeding. Abnormal findings, such as secondary anemia, a low metabolic rate, and obesity must also be corrected.

The third day of the artificially created menstrual bleeding marks the starting point of treatment each month. Thereafter the patient is given 2.5 milligrams of conjugated estrogens orally each day for three weeks. On the twenty-first day of the artificially created cycle the patient is given 100 mg. of progesterone intramuscularly or is given 50 mg. of progesterone intramuscularly every other day for a total of three doses. Both methods are satisfactory. A larger single dose has the advantage of requiring only one visit to the office by the patient during the treatment period. It is, however, considerably more painful than the smaller dose. If the treatment is successful, the patient should bleed approximately one week after the administration of the progesterone. This cyclical therapy should be repeated over a period of three months. Treatment is then discontinued to observe possible resumption of menstrual periods in the normal fashion. The treatment is not intended to be a direct stimulation upon the faulty pituitary gland and ovary. Actually it is directed toward the end organ, the endometrium. However, it is suggested that re-establishment of rhythmic bleeding has a beneficial effect upon the ovary and pituitary gland which results in the re-establishment of ovulation. The success of the treatment cannot be accurately explained. It does avoid the use of substances, such as testosterone and stilbestrol, which may have undesirable side effects.

The described method of treatment may be repeated, particularly in the young girl or woman desirous of further pregnancies. Unsuccessful hormonal management of the young woman who has obtained her desired family may sometimes justify hysterectomy. The older woman near the menopause who has repeated episodes of severe bleeding should have the already failing ovarian function eliminated by the simple application of a sterilizing dose of x-ray to the pelvis.

The young girl must be handled conservatively. She must be given every opportunity to re-establish normal ovarian function. The use of surgery in these children must be restricted to curettage, even if it be used repeatedly. Eventually, these patients establish regular menses or, as has occurred in a few instances, amenorrhea.

The presence of hyperplasia in the prepubertal or post menopausal patient must be investigated thoroughly for the possible presence of an estrogen-producing tumor. This, however, is not within the scope of the present paper.

Functional bleeding may be caused by a less widely known condition called irregular shedding. Here the abnormality is associated with the secretory phase of the menstrual cycle. The underlying cause of irregular shedding is not as well understood as in hyperplasia. There is evidence to show that there is an incomplete withdrawal of hormones at the time of menstruation. Instead of a prompt decrease of progesterone prior to bleeding, the quantitative withdrawal is gradual over several days. This prevents a complete disintegration of the endometrium, resulting in an irregular shedding of the surface and a retention of secretory endometrium. Because the previously functioning endometrium is partially retained, complete healing of the surface cannot occur. As a result of this pathological retention, the menstrual bleeding is prolonged. Diagnosis of the condition is possible only by the use of a properly timed curettage. One must do the operation after the fourth day of bleeding. It is useless to curette the patient after bleeding has stopped. Tissue properly obtained will demonstrate a characteristic histological picture in which the stroma appears contracted and darkly stained. The endometrial stroma has the appearance of breaking into small fragments. The glands retain the appearance of the secretory phase, but are usually collapsed and assume a starlike shape. Little cytoplasm will be evident, indicating a state of exhausted function.

The diagnosis of irregular shedding is suggested by a history of prolonged bleeding which occurs rhythmically and at the expected time of the menstrual period. The patients are predominately in the older age group. Younger women may exhibit this disease not infrequently following a pregnancy. One could attempt biological assays to establish diagnosis, but this is impractical. Curettage, properly timed, is the most effective means of diagnosis and treatment.

The treatment of irregular shedding by medical means has not been successful. This is not important, however, since a very high percentage of patients are cured by curettage alone. In younger women, curettage is usually followed by normal periods. In the older age group, the curettage may be followed by the resumption of normal bleeding or by the cessation of periods completely. In some instances the condition is unaffected by the curettage. Since irregular shedding is related to ovarian failure, function may be completely eliminated by x-ray sterilization. In the younger age group, the administration of large doses of estrogens after several days bleeding has been used with some success. Occasionally very severe cases require repeated curettage or hysterectomy.

In summary, specific methods for the management of functional uterine bleeding have been presented. Emphasis is placed upon the need for histological diagnosis before a definite hormone program is started. The therapy recommended is based upon the use of hormones which have no untoward side effects and are physiologically sound.

ISONICOTINIC ACID HYDRAZIDE

Isonicotinic acid hydrazide, the most recent development in the therapeutics of tuberculosis, if it proves to have a comparable effect in humans as has been demonstrated in animals—will have its important place in the treatment of tuberculosis, but also its limitations. It was two or more years after streptomycin began to play an important role before resection of diseased pulmonary tissue began to have its effect in the treatment of tuberculosis.

It is more than likely that isonicotinic acid hydrazide will have an effect in the treatment of tuberculosis that may be even greater than that of streptomycin, but up to this point clinical evidence is not available to substantiate assumptions based on animal experimentation. Basically the success of treatment now depends upon bed rest, good nursing care, graduated exercise, combined with a judicious selection of appropriate therapeutic measures, both surgical and medical, under close medical supervision in tuberculosis hospitals.—Paul S. Phelps, M.D., and Reginald C. Edson, M.D., *Connecticut State Medical Journal,* May, 1952.

President's Letter

A PAUSE FOR THANKS

Giving thanks in America is often merely a ritual which we observe annually at Thanksgiving time. Yet, the typical American Thanksgiving dinner—with turkey, dressing, cranberries, squash, mashed potatoes, rich gravy, sweet potatoes, pumpkin pie with whipped cream, and all the other trimmings—is symbolic of the land of plenty which America is today.

And, it is fitting, too, that America was the scene of the first Thanksgiving Day. But that first official day for returning thanks was vastly different from the Thanksgiving we observe today. The Pilgrims had survived a long hard year of striving to stay alive and they were genuinely grateful for all they had. Today, we have no comparable hardships to endure. Possibly, our main difficulty is sparing enough money from other luxuries to pay for our huge feast. And yet, many of us are not genuinely thankful. We generally are a nation which takes its blessings for granted.

Some may argue that this is one of our blessings—the privilege of taking our blessings for granted. As logical and true as that may appear, it is a complacent way to look at things. Merely to take things for granted admits a willingness to accept as ours the very things for which others worked and sacrificed.

We, as doctors, can give thanks for a multitude of things. We have the supreme privilege of serving our fellow men. We can be thankful for the good fortune of being educated to the profession of healing and of the ability to aid others to recover from illness, thus affording them reason to render thanks. Ours is a gratifying task.

As doctors, we must be thankful that our profession is unshackled. We can practice medicine with a maximum of freedom. We have access to the latest and best information which is readily adaptable for use for the good of others.

We can be thankful not only as a profession but as individuals as well. As Americans our list of blessings is long and varied. As individual Americans, we can still count the famed freedoms as our personal blessings. We still have the right of life, liberty, the pursuit of happiness, freedom of speech, press, religion, the right of assembly, privacy, due process of law and the privilege of casting votes for those we wish to have represent us.

With such a rich heritage the answer to the question, "Who has more to be thankful for than Americans?" must surely be "No one!" In pausing to give thanks for our many material gifts, let us ask that spiritual strength and blessings be granted us in equally abundant measure.

Roger L J Kennedy

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

POLIOMYELITIS IN MINNESOTA, 1952

THROUGH October 15, 1952, 3,117 cases poliomyelitis with 151 deaths in Minnesota residents had been reported to the State Health Department with an additional 169 cases and sixteen deaths in nonresidents. The percentage of fatal cases, in residents (4.8 per cent) is the lowest of any recent year, except 1950, when 4.1 per cent of patients died. The number of cases in 1952 exceeds that of any previously reported year, although more deaths were reported in 1946 and 1910.

This year's cases include 1,705 males, 55 per cent of the total, and 1,412 females, 45 per cent of the total. This sex distribution is the same as in recent years. Fatal cases include 88 males (58 per cent) and 63 females (42 per cent). Sixty-five per cent of the cases and 47 per cent of the deaths reported occurred in children under fifteen years of age, confirming the impression that poliomyelitis is a childhood disease primarily, and that in general the majority of adults are immune, probably as a result of unrecognized childhood infection. A fatal outcome is more likely, however, in adults who do develop the disease; 35 per cent of the cases and 53 per cent of the deaths were in persons fifteen years of age and over.

Analysis of about 2,000 of this year's reported cases, as to type of involvement, indicates that 25.8 per cent of these cases were of the bulbar type; 21.5 per cent, spinal paralytic; 52.7 per cent, nonparalytic. These percentages may not be greatly different from those of 1946, 1948, and 1949, other recent epidemic years, when finally completed.

Cases of poliomyelitis this year have been distributed widely and generally throughout the entire state, with some apparent sparing of the southwest corner where a winter outbreak was prevalent in December of 1951, and January, 1952. The State total of cases is the cumulation of all the local epidemics that flare up in various communities, and the duration and final extent of the statewide problem depends somewhat on the timing of these local outbreaks. In general, six weeks of mounting reports precede the week of peak numbers, and at least nine weeks of more slowly dropping reports follow. Thus the peak week of cases in 1946, when Minneapolis was heavily involved early in the summer, was the week ending August 17; in 1948, September 18; in 1949, August 27, and in 1952, the week ending September 13. Since the peak week this year, over 1,400 additional cases have been reported, as a result of involvement of practically all areas of the State

MINNESOTA DEPARTMENT OF HEALTH—SECTION OF PREVENTABLE DISEASES
POLIOMYELITIS

Cases Reported in Minnesota Residents According to Type

Type	1946	1948	1949	1952 (thru Oct. 15)
Paralytic	63.3%	49.2%	51.3%	47.3%
Bulbar	16.7	19.8	18.5	25.8
Spinal	46.6	29.4	32.8	21.5
Nonparalytic	28.5	49.0	45.2	52.7
Unknown	8.2	1.8	3.5	

(Above figures represent only about 2,000 cases in which type is known to date.)

MINNESOTA DEPARTMENT OF HEALTH—SECTION OF PREVENTABLE DISEASES
POLIOMYELITIS

Cases, Deaths, and Rates per 100,000 Population 1946-Oct. 15, 1952

Year	Cases	Case Rate per 100,000 pop.	Deaths	Death Rate per 100,000 pop.
1946	2,881	102.3	226	8.0
1947	201	6.9	13	0.5
1948	1,387	47.2	110	2.7
1949	1,715	57.6	111	3.7
1950	502	16.9	21	0.7
1951	511	16.9	31	1.0
1952 (to Oct. 15)	3,117	103.3	151	5.0

The chief problems this year have been to find sufficient nurses to staff the facilities required to handle the rush of cases. National resources were committed to other states prior to Minnesota's need. Progress was made in utilizing more local facilities and opening up of private and other large hospitals in the Twin Cities for care of convalescent patients. Exaggerated fear on the part of the general public continues to be a real problem.

Many reports have come in of atypical illness occurring in communities at the same time cases of paralytic poliomyelitis have appeared and likewise in the absence of recognized polio. Some of these outbreaks have resembled those reported in other states where Coxsackie viruses have been demonstrated in persons with herpangina, pleurodynia, and nonparalytic neuromuscular complaints. There is great need for the provision of adequate resources to permit proper laboratory story of these outbreaks, using the steadily increasing knowledge of viruses that now exists.

D.S.L.

ANTABUSE® AND ALCOHOLISM

ANTABUSE® is the trade name of Ayerst, McKenna, and Harrison, Ltd., for its brand of tetraethylthiuram disulfide. It is offered in the treatment of alcoholism. The drug, when taken by mouth, delays the breaking down of alcohol in the blood, and when alcohol in any form is taken illness, sometimes violent in nature, results. The larger the dose of the drug taken, the more violent the reaction after imbibing alcohol in any form, and the more alcohol consumed, the greater the reaction. Illness on taking a drink is experienced as long as seven or eight days after a single dose of 1.5 grains of the drug. Also, the patient should not be given the drug until a period of two weeks has elapsed since he has had a drink. Dosages should be kept low—at 0.5 gm. or less, daily, for the first two or three weeks and at 0.25 gm. or less as a maintenance dose. It should also be remembered that individuals react differently to drugs—Antabuse® included.

The symptoms produced on taking a drink following the administration of Antabuse® are largely cardiovascular and consist of flushing, sweating, palpitation, dyspnea, hyperventilation, tachycardia, fall of blood pressure, nausea and vomiting. Usually, drowsiness ensuses with complete recovery following sleep.

It is obvious that the drug should not be given in the presence of other illnesses such as diabetes mellitus, myocardial weakness, coronary disease, pregnancy, goiter, epilepsy, cirrhosis of the liver or nephritis. Also, it should not be given to one over fifty years of age. As the action of barbiturates is aggravated by Antabuse,® they should not be given concomitantly.

How extensively Antabuse® is used, we do not know. We do know that it should be used only as an adjunct in the treatment of alcoholism and not as a specific for a certain disease. It should also be used with caution and only by the informed.

The other phases of treatment of alcoholism, such as hospitalization, psychiatric assistance and the treatment of co-existing disease, should not be neglected.

CORTISONE AND CORTICOTROPIN

Policy for Administration in Welfare-Sponsored Medical Care

AT a recent meeting of the medical advisory board of the State of Minnesota Division of Social Welfare, a revision of the policy concerning the use of cortisone and of corticotropin (ACTH) was discussed. With increasing medical experience in employing these hormones, and with increasing availability of the preparations, an attempt has been made by the medical advisory board to evaluate and facilitate their use when necessary by recipients of welfare-sponsored medical care.

Cognizance has been taken of the fact that this group of patients includes many elderly people who are recipients of old-age assistance. Likewise there are included other patients having diseases which might make the use of cortisone or corticotropin hazardous. One giving guidance in selecting patients for hormone therapy should first consider those diseases in which such therapy is contraindicated or in which if such therapy is undertaken it is done at an increased risk of a varying degree. Such diseases include tuberculosis, syphilis, latent or frank psychosis, severe psychoneurosis, peptic ulcer, hypertension, congestive heart failure, nephritis, thrombophlebitis, diabetes mellitus, pyogenic infections, pregnancy, convulsive disorders (exclusive of idiopathic hypoglycemia) and severe osteoporosis.

In many diseases the use of cortisone and of corticotropin has been shown to be of value. The medical advisory board has reviewed these diseases with respect to treatment by these hormones as a background for the policy it is here recommending.

Bronchial Asthma.—Patients having bronchial asthma may experience transitory benefit from cortisone or from corticotropin. The use of these hormones is but an adjunct to other established procedures in the management of this disease. The use of these substances is best indicated in the critically ill asthmatic patient or in one seriously ill and who is failing to respond to more conservative forms of therapy. It is doubtful if the use of these hormones is justified in most patients having other allergic diseases such as seasonal hay fever, uncomplicated vasomotor rhinitis, or less severe urticaria.

Rheumatic Fever.—The effect of cortisone and of corticotropin on the course of acute rheumatic fever has been repeatedly demonstrated. Prolonged studies will be necessary, however, before the influence of these hormones on the development and course of rheumatic heart disease can be determined. Certain studies would suggest that there is a favorable influence on acute rheumatic carditis following such therapy. It would appear that cortisone and corticotropin have no influence on rheumatic heart disease sustained in previous bouts of rheumatic fever, or on damage sustained in a given course of rheumatic fever prior to the institution of hormone therapy. With our present understanding, it would appear that the use of these hormones is well justified in many instances of the acute phase of rheumatic fever.

Rheumatoid Arthritis.—Rheumatoid arthritis is characterized by a course which varies in its extent, duration and severity. Conservative measures of therapy including physical medicine, general supportive measures, rest and certain specialized forms of treatment (for example, vaccines, fever therapy, gold-salt therapy) permit favorable control of the course of the disease in many instances. The use of cortisone and corticotropin may be considered only in those patients in whom the active phase of the disease continues to be progressive despite such treatment. Even in these instances cortisone and corticotropin will be of greatest value as a supplement to, rather than as a substitute for, basic conservative measures. Beneficial effects from hormone therapy are usually limited to the duration of their administration and a varying but usually relatively short period thereafter. Only limited if any beneficial results are to be anticipated in the treatment of structural joint changes already present as the result of previous articular inflammation. These hormones will not effect a repair of extensive joint damage once such has developed.

Osteoarthritis.—The value of cortisone and of corticotropin has yet to be established in the management of osteoarthritis, that type of degenerative joint disease constituting the vast majority of instances of so-called arthritis in patients past middle age. It would appear advisable to defer for the present the acceptance of such patients for therapy.

Dermatologic Diseases.—In certain severe dermatologic diseases and in systemic diseases commonly exhibiting prominent dermatologic manifestations, the use of cortisone and corticotropin is of value. These include the acute systemic forms of lupus erythematosus and pemphigus. Those drug eruptions and systemic reactions, especially that group occurring as an urticarial or sensitization reaction following use of antibiotics or serums, may necessitate the employment of hormone therapy if more conservative types of treatment prove ineffectual. Patients having refractory noninfectious erythema multiforme or acute severe generalizing dermatitis venenata may require the use of hormonal therapy when failing to respond to more conservative management. Under careful management the use of these hormones may be indicated in patients having extensive and severe eczema or exfoliative dermatitis which has failed to respond to usual forms of therapy.

Ophthalmologic Diseases.—Patients having certain eye diseases are helped by therapy with cortisone or corticotropin. Cortisone may be administered topically; cortisone and corticotropin may need to be administered systemically. A list of eye diseases wherein hormones may be employed with success appears in a later section.

Burns.—The use of cortisone and of corticotropin in extensive and severe burns is of particular value in the shock phase of this type of injury.

Addison's Disease.—Cortisone has been demonstrated to be effective as an adjunct in replacement therapy in patients having Addison's disease. Adrenal cortical insufficiency occurring as a part of panhypopituitarism likewise may require adrenal replacement therapy in which cortisone is useful. The employment of cortisone in replacement therapy necessitates the use of far smaller doses than those commonly employed in the treatment of other diseases influenced by this hormone.

Comment

In view of the demonstrated value of cortisone and of corticotropin in the treatment of certain patients having the foregoing diseases, the medical advisory board of the State of Minnesota Division of Social Welfare has considered it advisable to recommend to the Division of Social Welfare an extension of its policy concerning the use of these hormones. Patients who otherwise qualify for medical benefits at public expense in accordance with the Statutes of the State of Minnesota may now be eligible for treatment with cortisone or corticotropin when necessary according to the outline to follow.

In determining this outline for guidance in acceptance of responsibility in payment for cortisone and corticotropin, certain conditioning considerations have been delineated.

Certain diseases, by virtue of their rapid course, necessitate early employment of the hormones without the delays incident to securing authorization for payment for these substances. In such instances as later defined, a physician may start therapy and at that time solicit authorization for its expense from the Medical Director of the Division of Social Welfare. Prompt action will be taken on such a request. In any event, in such cases financial responsibility for the first three days of hormone treatment will be assumed by the Division of Social Welfare.

In certain other diseases not presenting an indication for the emergency use of cortisone or of corticotropin, authorization for the use of hormones at public expense should be secured in advance.

When the disease in question is one wherein a satisfactory therapeutic response may be anticipated following topical use of cortisone, relatively small amounts of the hormone are required. Illustrative of such diseases is a group of diseases of the eyes. In such instances prior authorization for the assumption of financial responsibility by the Medical Director of the Division of Social Welfare need not be obtained.

This outline, determined by physicians practicing in various sections of the state, appears to be a current equitable guide for use in a difficult problem. It is recognized that with further experience, changes in this proposed program may become necessary.

1. *Conditions wherein systemic cortisone or corticotropin therapy may be started without prior authorization for its expense,* but concerning which notification should be sent immediately to the Medical Director of the Division of Social Welfare. Liability for the cost of hormone therapy employed cannot extend beyond three days without such authorization.

(1) Status asthmaticus
(2) Acute rheumatic fever with or without associated carditis
(3) Extensive burns
(4) Systemic crises of disseminated lupus erythematosus
(5) Serum sickness (severe)
(6) Drug reactions (severe, of urticarial or sensitization type)
(7) Erythema multiforme (severe, of noninfectious type)
(8) Dermatitis venenata (acute, severe, generalized)
(9) Exfoliative dermatitis
(10) Periarteritis nodosa
(11) Pemphigus
(12) Ocular diseases which because of severity or lack of response to local treatment may require the systemic administration of hormones (for example, sympathetic ophthalmitis, acute nongranulomatous uveitis, chemical and thermal burns, posterior uveitis, retrolental fibroplasia, scleritis, acute focal choroiditis, interstitial keratitis, and late vernal conjunctivitis)

2. *Conditions wherein the liability for the expense of cortisone or corticotropin therapy will be assumed only following authorization* by the Medical Director of the Division of Social Welfare. Liability for expense of therapy cannot be assumed unless prior authorization is granted.

(1) Severe progressive rheumatoid arthritis
(2) Rheumatoid spondylitis deformans
(3) Psoriatic arthritis
(4) Nontropical sprue
(5) Idiopathic hypoglycemia with convulsive disorder
(6) Sarcoidosis
(7) Addison's disease*
(8) Panhypopituitarism
(9) Other diseases for which hormone therapy is currently being used but for which other forms of therapy permit satisfactory treatment

3. *Conditions wherein liability for the expense of cortisone employed topically will be assumed* by the Medical Director of the Division of Social Welfare. Eye diseases wherein cortisone topically administered may be expected to be of value include the following.

(1) Sympathetic ophthalmitis
(2) Acute nongranulomatous uveitis
(3) Postoperative uveitis
(4) Chemical burns of the eye
(5) Thermal burns of the eye
(6) Episcleritis
(7) Scleritis
(8) Interstitial keratitis
(9) Keratoplasty (postoperatively)
(10) Recurrent corneal ulcer
(11) Allergic blepharitis and blepharoconjunctivitis
(12) Vernal catarrh (early stage)
(13) Phlyctenular keratoconjunctivitis
(14) Acne rosacea keratitis
(15) Endophthalmitis phacoanaphylactica

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*In this disease only cortisone should be employed.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

WMA WOULD LIMIT SOCIAL SECURITY

A sound and sensible attitude toward social security schemes on a broad basis is presented in a recent statement by the World Medical Association. The international medical group states that "Doctors are perturbed by possible unfavorable effects of Social Security schemes on individual men and women. While they recognize that society has an obligation to help those who through nature, nurture, accident, disease and environment are handicapped in the struggle to survive, they fear the demoralizing effects of state paternalism exercised on adults."

Stating that a powerful factor in promoting good health and quick recovery from illness is a sense of personal responsibility, the WMA feels that any scheme which tends to decrease this personal responsibility is not a sound one. "The more the State does in this direction (free medical services), the less is the individual sense of obligation and responsibility," the statement says.

Lays Down Principles

The World Medical Association then goes on to recommend that:

1. When Social Security schemes are necessary, they should be developed in the closest collaboration with the medical profession. Such schemes should take into account the psychological effects on the beneficiaries of increased dependency and diminished responsibility.
2. The fundamental aim of a Social Security scheme should be to raise the individual to a level at which he can help himself. From this, it follows that:
3. Any Social Security scheme should contain elements that encourage self-reliance and a sense of personal responsibility, and that;
4. Any Social Security scheme should stress the obligation of the individual to make at least part of his contribution directly to the functioning and costs of the scheme.

The WMA stipulates that whenever medical care is provided as part of social security, the following principles should govern it:

1. Freedom of choice of physician by the patient. Liberty of physician to choose patient except in cases of urgency or hunanitarianism.
2. No intervention of third party between physician and patient.
3. Where medical service is to be submitted to control, this control should be exercised by physicians.
4. Freedom of choice of hospital by patient.
5. Freedom of the physician to choose the location and type of his practice.
6. No restriction of medication or mode of treatment by physician except in case of abuse.
7. Appropriate representation of medical profession in every official body dealing with medical care.
8. It is not in the public interest that physicians should be full-time salaried servants of the government or social security bodies.
9. Remuneration of medical services ought not to depend directly on the financial condition of the insurance organization.
10. Any social security or insurance plan must be open to the participation of any licensed physician, and no physician should be compelled to participate if he does not wish to do so.
11. Compulsory health insurance plans should cover only those persons who are unable to make their own arrangements for medical care.
12. There shall be no exploitation of the physician, the physician's services or the public by any person or organization.

NEW REPORT ISSUED ON MORTALITY TRENDS

The Bureau of Medical Economic Research of the American Medical Association has recently issued a new comprehensive report on mortality trends in the United States since 1900. Although the report is presented with the bureau's usual intensive and inclusive study of facts and figures, it offers a clear and concise picture of the mortality situation in this country. Dr. Frank G. Dickinson, bureau director, states in the report:

"The decline in the crude mortality rate from 17.2 deaths per 1,000 population in 1900 to 9.7 in 1949 understates the health progress of the last half century. While the population has doubled, the number of persons over sixty-five has quadrupled in this period."

Speaking editorially, *The Journal of the American Medical Association* said of this report:

"Although the emphasis of the bulletin is on causes of death, the numerous charts and tables combined with the penetrating analysis of mortality trends provide physicians and other students of vital statistics with a clear-cut analysis of the spectacular reductions in mortality during the past half century."

Explaining the increase in life expectancy further, the editorial stated:

"A small portion of the twenty-year increase in life expectancy at birth resulted from mortality gains at the higher ages; for example, the 22 per cent drop in mortality at ages sixty-five to seventy-four accounted for 2 per cent of the increase. . . . Life expectancy at any age reflects the mortality rates among older persons in a particular calendar year. What those mortality rates will be ten or twenty years from now cannot be discerned from any current table of life expectancy values. If the rapid rate of health progress in the United States since 1900 should be continued, our people may have longer lives than the people of any other nation."

A difference in reporting deaths accounts for some of the changes in rates in 1900 and in the present. The editorial says:

"Although the mortality rate from all causes combined has declined for every age group since 1900, the number of deaths per thousand population from heart diseases has increased for all age groups over thirty-five, from cancer for every age group, and from diabetes for age groups over forty-five. Some of these increases are the result of improved diagnoses of the causes of death and changes in record-keeping. Many deaths in 1900 that would have been attributed to ill-defined causes would, under present-day procedures, have been attributed to heart diseases, cancer, or diabetes."

Accident Rate High

The authors point out that although heart diseases account for more than five times as many deaths as accidents and twice as many life years lost, nevertheless fatal accidents in 1948, as in 1945 and in 1940, cut off more working lifetimes of the American people than any major cause of death. Accident prevention, the editorial says, lags far behind medical progress.

In noting the bulletin's tabulation of the changes in the major causes of death, the editorial reports:

"In this century the average age at death from each of the major causes of death has risen. The seven leading causes now account for three-fourths of our deaths, as compared with only one-half in 1900. Perhaps this fact accounts for some of the trend toward specialization in medicine. For the physician attending a patient in his final illness today is likely to be treating him for heart disease or cancer, whereas in 1900 it might have been any of a much larger number of diseases."

Praises Present System

In summarizing the importance of the progress noted in the bulletin, the AMA editorial ended with a final word of praise for American medicine: "We started the 20th century with many health disadvantages. The record of accomplishment set forth in Bulletin 92 provides the basic reason why physicians and other enlightened citizens should hold fast against any and all schemes to destroy our system of medical care under which this astounding record was made."

MINERS REPORT WELFARE FUND

The United Mine Workers Welfare and Retirement Fund, in its report for the year ending in June, 1952, lists expenditures of nearly $50 million for hospital and medical care benefits. The fund provided for 2,154 days of hospitalization and medical care for 215,372 beneficiaries throughout the bituminous coal mining communities. Miners, working or retired, and their families received 85.6 per cent of the benefits, with 4.1 per cent going to widows and orphans of deceased miners and 10.3 per cent to disabled beneficiaries who are being rehabilitated in specialized rehabilitation centers or in other institutions qualified to treat the less severely handicapped.

UMW Sponsors Hospital Associations

The same report also lists as a major development, a fund authorizing loans to the UMW-sponsored Memorial Hospital Associations of Kentucky, West Virginia and Virgina for the construction of hospitals in ten coal-mining areas. The miners' union hopes that construction of these hospitals will get under way during the coming fiscal year.

The sun is the greatest of remedies.—Pliny, Natural History, A.D. 77, quoted in *British Journal of Tuberculosis and Diseases of the Chest,* July, 1951.

◆ Reports and Announcements ◆

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY

The First Annual Clinical Session of the American Academy of Obstetrics and Gynecology will be held December 15-17, 1952, at the Palmer House, Chicago, Illinois.

The meeting will feature six general sessions and forty-eight discussion groups of forty Fellows each. There also will be at least fifteen new scientific exhibits and about sixty technical displays.

The annual banquet Tuesday evening, December 16, will feature an address by the retiring president, Carl P. Huber of Indianapolis. The first truly national organization in its field, the Academy was incorporated August 14, 1951, and already has some 2400 qualified Fellows.

Election of officers will take place at the annual business meeting Tuesday morning.

Program chairman is Ralph A. Reis of Chicago.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The nineteenth annual meeting of the American College of Chest Physicians will be held at the Hotel New Yorker, New York City, May 28-31, 1953.

Physicians who wish to present papers at the meeting should submit titles and abstracts to Dr. Arthur M. Olsen, Chairman, Committee on Scientific Program, American College of Chest Physicians, Mayo Clinic, Rochester, Minnesota.

STUDENT AMA MEETING

The annual session of the House of Delegates of the Student American Medical Association will be held at the Sheraton Hotel, Chicago, December 29-30, 1952.

Dr. Walter C. Alvarez, Chicago, will speak, December 30, on "The Disappearing Art of Diagnosing with the Eyes and Ears," and Dr. John Van Nuys, dean of the Indiana University School of Medicine, will be the principal luncheon speaker the same day, discussing "A Dean and His Problems."

MEDICAL CRUISE CONGRESS

Physicians and their families are cordially invited to make application to join the Eighth International Medical Cruise Congress of the Pan American Medical Association sailing from New York on the *S. S. Nieuw Amsterdam* of the Holland-America line on January 7, 1953.

Physicians contemplating making the trip are invited to give a scientific address at one of the morning scientific sessions held each day on shipboard. The purpose of the cruise is to combine relaxation with study and to further medical contacts between members of the profession in the western hemisphere.

This twelve-day cruise will include ports in the Caribbean. The office of the Pan American Medical Association at 745 Fifth Avenue, New York 22, New York, should be contacted for further information.

PRIZE AWARD FOR PAPER ON DIABETES

The American Diabetes Association offers a $250.00 prize to *medical students* and *interns* for a paper on any subject relating to diabetes. The paper can be a report of original studies, a biographical or historical note, a case report with suitable comment, or a review of the literature.

This incentive is particularly apropos in the field of diabetes, since Dr. Paul Langerhans made his studies of the pancreas, describing the islets that bear his name, while he was an undergraduate student in Berlin in 1869; and Dr. Charles H. Best, while a graduate student was co-discoverer of insulin in 1922.

Manuscripts must be submitted on or before April 1, 1953 to the Editorial Offices of *Diabetes:* The Journal of the American Diabetes Association, 11 West 42nd Street, New York 36, New York. The papers will be reviewed by the Editorial Board, which will take into consideration the value of the material and method of presentation in selecting the best paper.

The award of $250.00 has been made possible through the generosity of the St. Louis Diabetes Association, an affiliate of the American Diabetes Association.

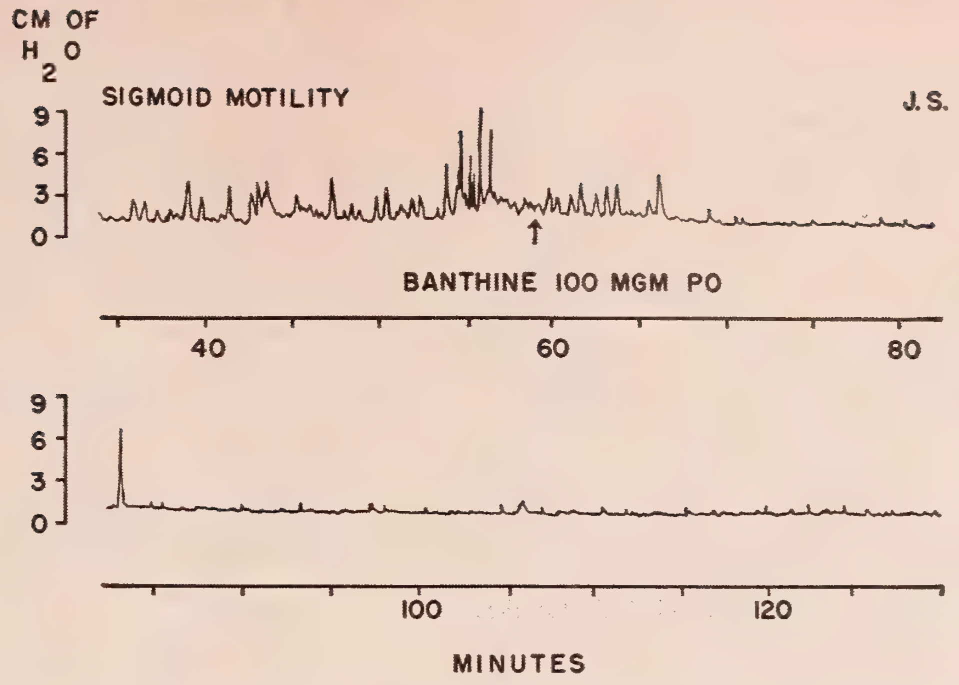
ELECTROLYTE METABOLISM SYMPOSIUM

A national symposium on electrolyte metabolism, sponsored by the M & R Laboratories, was held at the University of Minnesota, September 22-24.

Lecturers included: Dr. Daniel C. Darrow, Yale Unipersity, pediatrics professor; Dr. Willis H. Thompson, University of Minnesota, assistant pediatrics professor; and Dr. S. Danowski, University of Pittsburgh, professor of research medicine.

MINNESOTA PUBLIC HEALTH CONFERENCE

The sixth annual Minnesota Public Health Conference was held at the Saint Paul Hotel, Saint Paul, October 2-3, 1952. The meeting marked the eightieth anniversary of the creation of the Minnesota State Board of Health and was open to anyone interested in public health. At the business session, Irene Donovan, director of the Saint Paul Family Nursing Service, was elected president, replacing Dr. Charles G. Sheppard, Hutchinson; Dr. Ralph L. West, executive director of the state livestock sanitation board, first vice president; Dr. Donald R. Mackay, Saint Paul dentist, second vice president; and Allan Stone, executive director of the Minnesota division, American Cancer Society, treasurer. Dr. A. J. Chesley, executive secretary of the State Board of Health, and Dr. Harold S. Diehl, dean of the medical sciences at the University of Minnesota, were presented honorary memberships.



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COUNCIL ON PHARMACY AND CHEMISTRY
AMERICAN MEDICAL ASSOCIATION

1. Kern, F., Jr.; Almy, T. P., and Stolk, N. J.: Effects of Certain Antispasmodic Drugs on the Intact Human Colon, with Special Reference to Banthine (β-Diethylaminoethyl Xanthene-9-Carboxylate Methobromide), Am. J. Med. *11*:67 (July) 1951.

2. Lepore, M. J.; Golden, R., and Flood, C. A.: Oral Banthine, an Effective Depressor of Gastrointestinal Motility, Gastroenterology *17*:551 (April) 1951.

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

CONTINUATION COURSES

A continuation course in *Gynecology for Specialists* in that field will be presented by the University of Minnesota on December 15-17, 1952. The two-and-a-half day session will be held at the Center for Continuation Study on the University campus. Subjects to be considered will include endometriosis, culdoscopy as a diagnostic tool, and gynecologic malignancy including the question of carcinoma *in situ.*

Dr. Arthur Hertig,* the distinguished Professor of Pathology at Harvard Medical School, will participate in the course as a member of its faculty. The course will be presented under the direction of Dr. John L. McKelvey, professor and head of the Department of Obstetrics and Gynecology, and the remainder of the faculty will include clinical and full-time members of the staff of the University of Minnesota Medical School.

A continuation course in *Anesthesiology for General Physicians* will be presented by the University of Minnesota on January 8-10, 1953, at the Center for Continuation Study. Emphasis will be placed throughout the course on anesthesiological techniques available to practicing physicians and surgeons. Regional anesthesia will be dealt with in detail, and the management of shock will also be discussed thoroughly. A special feature will be a detailed consideration of the function and operation of a Recovery Room.

Three distinguished visitors will participate as members of the faculty for this course: Dr. Donald E. Hale, Director, Department of Anesthesiology, Cleveland Clinic, Cleveland, Ohio; Dr. Sidney O. Orth, Professor and Director, Department of Anesthesiology, and Professor of Pharmacology, University of Wisconsin Medical School, Madison, Wisconsin; and Dr. Daniel C. Moore, Chief of the Anesthesiology Section, Virginia Mason Hospital, Seattle, Washington. The course will be presented under the direction of Dr. Ralph T. Knight, Director, Division of Anesthesiology, and the remainder of the faculty will include members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

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SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

The Southwestern Minnesota Medical Society held its first meeting in a series of four at the Worthington Municipal Hospital, September 15. The dinner meeting was attended by thirty-two doctors and their wives.

Dr. A. B. Rosenfield, director of the Division of Maternal and Child Health for the State Health Department, and Dr. Alex Barno, of Minneapolis, spoke on the maternal mortality rate in Minnesota. In comparison with studies from other states, Minnesota has one of the lowest maternal death rates.

HEALTH DEPARTMENT LAUNCHES NEW PROGRAM

The Minnesota Department of Health is launching a new type of program in professional education for physicians this fall and winter. Pathological conferences on cancer and heart disease are being scheduled as a part of regular hospital staff meetings.

During the past three years the Department of Health has sponsored seminars on heart disease and cancer throughout the state. Each consisted of a two-hour session for eight consecutive weeks. Three professional groups, physicians, dentists and nurses attended these seminars. Essentially, the method of teaching in the seminar was by means of the formal lecture with time following for questions. The conference, on the other hand, is a more informal program with greater freedom of "give and take" between the guest consultant and the audience. Hospital staffs, being smaller than seminar groups, make for closer feeling and more opportunity on the part of those attending to participate in the discussion.

The conference is led by a guest consultant who reviews with the group well worked up case histories of typical cancer and heart patients. The prime purpose in these meetings is to exchange information on diagnosis and treatment of these common every-day cases with these diseases. By means of problem presentation and questioning much information can be exchanged among those attending. Informality and free participation governs the entire sessions. Slides, x-ray film, and mimeographed material are used to supplement the presentation by the guest consultant.

The conferences are sponsored by the Minnesota Medical Association, University of Minnesota School of Medicine, Minnesota Cancer Society, Minnesota Heart Association as well as the Minnesota Department of Health.

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In Memoriam

JOHN A. BROBERG

Dr. John A. Broberg, a practitioner at Blue Earth, Minnesota, for many years, died October 13, 1952, at the age of ninety.

Dr. Broberg was born in Sweden, July 5, 1862, and came to this country at the age of five. He and his future wife both graduated from the University of Valparaiso, Indiana, in 1888 and they were married August 20, 1889. His medical degree was obtained from the University of Michigan medical school in 1892.

Dr. Broberg practiced at Delevan for six years before settling in Blue Earth in 1898. He retired from practice in 1942, after rounding out fifty years of service to his community. On August 20, 1949, Dr. and Mrs. Broberg celebrated their sixtieth wedding anniversary. Mrs. Broberg is still living at the age of ninety. Two daughters, three grandsons and four great-grandchildren also survive him.

Dr. Broberg was a charter member of the Blue Earth Valley Medical Society and was elected its first secretary. The pioneer physician was city health officer from 1902 until 1947.

Dr. and Mrs. Broberg liked to travel to far-away places. On one occasion they viewed the midnight sun from Fort Yukon in Alaska and a few years later from Hammerfest, Norway.

JAMES HOUGHTON DRAKE

Dr. James H. Drake, for many years a resident of Baudette, Minnesota, died at La Mesa, California, October 11, 1952.

Dr. Drake was born March 14, 1878, in Chicago. He graduated from Hahnemann Medical College in Chicago in 1903, attended the University of Minnesota and interned at Minneapolis City Hospital.

He practiced medicine in Alexandria, Minnesota, Hardin, Montana, and Hibbing before going to Baudette in 1919 as physician for the International Lumber Company. His war service included Spanish-American war duty as a private in the First Illinois Volunteer Infantry in 1898. He saw action at San Juan Hill, Cuba. During World War I he served as a captain in the medical corps. He was active in the Veterans of Foreign Wars from the time of its organization and was a leader of Peter Graham Post 2948 for many years. He was also active in the Elks Lodge and the Masonic Order.

Dr. Drake married Clarabel Moses of Alexandria, Minnesota, in 1907. His wife and a daughter, Jean, survive him.

EDWARD WILBROD FAHEY

Dr. Edward W. Fahey, Saint Paul, passed away at St. Joseph's Hospital on October 5, 1952. He was seventy-six years of age.

Dr. Fahey was born November 18, 1876, in Kingston, Ontario. He graduated from Queens Medical College at Kingston, Ontario, in 1901 and interned for twenty months at St. Mary's Hospital in Rochester, New York, before settling in Duluth in 1904. He practiced in Duluth until 1924 when he became the supreme physician for the Knights of Columbus and moved to Saint Paul. He retired in 1948.

In 1939, Dr. Fahey was made Knight Commander of the Order of St. Gregory by Pope Pius XI for his outstanding service as a layman.

Dr. Fahey was a member of the Ramsey County Medical Society, the Minnesota State Medical Association and American Medical Association. He is survived by two sons, Edward J. and John W., and a daughter, Margaret, all of Saint Paul.

SIM B. LOVELADY

Dr. Sim B. Lovelady, a member of the Mayo Clinic staff in the section of obstetrics and gynecology from 1940 to 1949, died of a heart attack October 8, 1952, at Houston, Texas. He left the Clinic in August, 1949, to enter private practice at Houston.

Dr. Lovelady was born January 11, 1909, at Danville, Alabama. He received his M.D. degree in 1934 from Tulane University, New Orleans. He was an intern at Charity Hospital, New Orleans, in 1934 and 1935. In 1935, he came to Rochester as a fellow in surgery in the Mayo Foundation and in 1939 became a first assistant in clinical obstetrics and gynecology.

Dr. Lovelady entered the medical corps of the army in August, 1942, as a major and was promoted to the grade of lieutenant colonel. He was assigned successively to the Army Medical Center in Washington, D. C., the 182nd General Hospital in New Orleans and served with the latter component in England and Ireland.

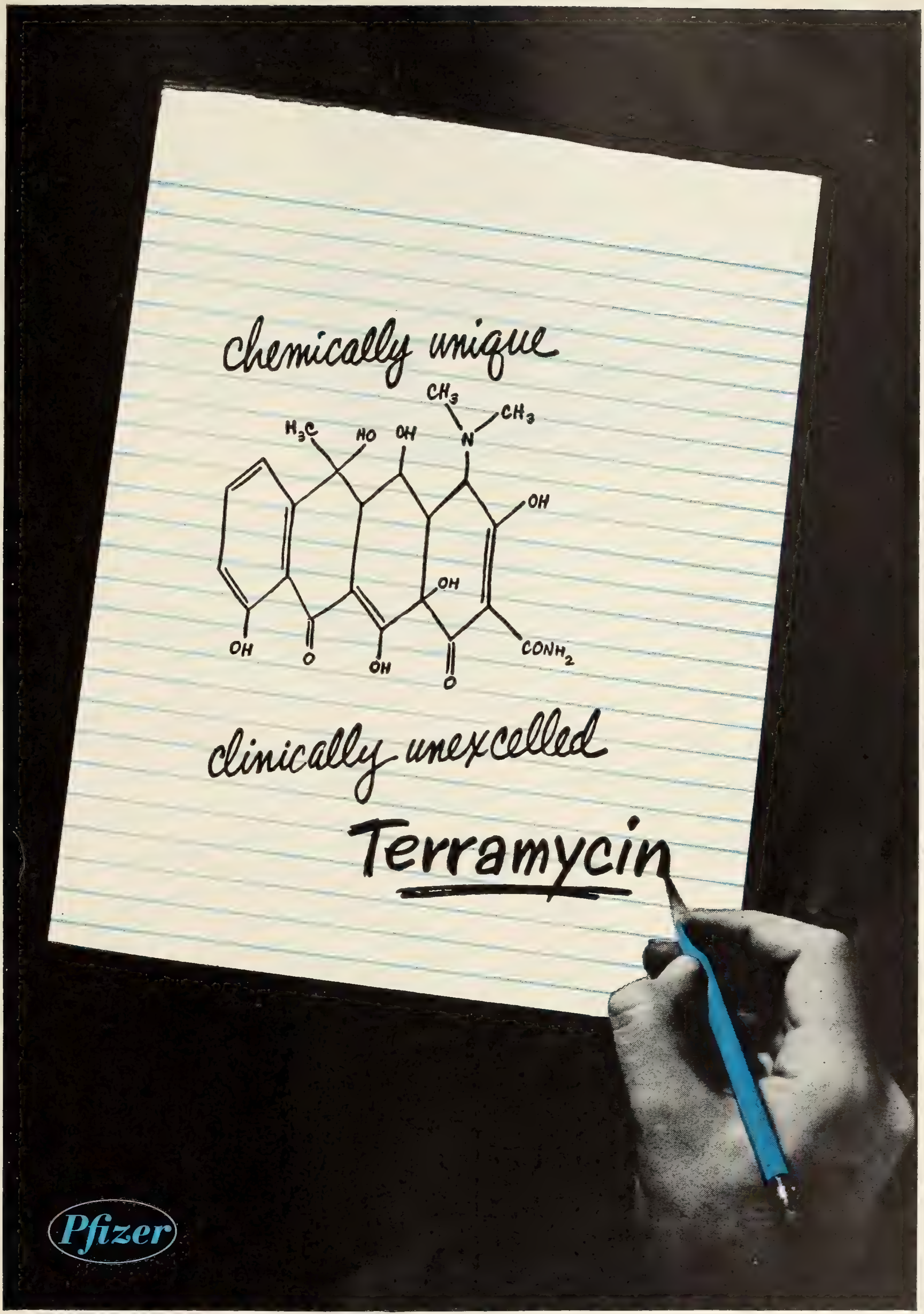
Dr. Lovelady was a fellow of the Royal Society of Medicine of England, the Central Association of Obstetricians and Gyencologists, the Minnesota Society of Obstetrics and Gynecology, Sigma Nu academic fraternity and Phi Chi medical fraternity.

Dr. Lovelady is survived by his wife, the former Mary Greer, three sons and a daughter.

OSWALD LEICHT

Dr. Oswald Leicht, for years a resident of Winona, Minnesota, died October 16, 1952, at a Sheboygan, Wisconsin, hospital following an illness of two years. He was born in Fountain City, Wisconsin, April 29, 1875. He received his M.D. degree from Northwestern University in 1898 and after practicing a short time went to London and Vienna to take spe-

(Continued on Page 1068)



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OSWALD LEICHT

(Continued from Page 1066)

cial studies in eye, ear, nose and throat diseases. He returned to Winona in 1900.

Dr. Leicht was active in musical and civic activities, having been the organizer of the Winona Symphony Orchestra in 1908 and the Winona Municipal Band in 1916. He was a past president of the Winona Board of Municipal Works and a past member of the Minnesota State Board of Medical Examiners. He was one of the oldest active members of the Winona Kiwanis Club.

He became president of the Winona Machine and Foundry Company in 1910 but continued the practice of medicine until the beginning of World War II. He then took over the active management of the foundry with his three sons.

In 1901, Dr. Leicht married Margaret Gardner. She died in 1928. His son, Joseph, died in 1949 as a result of injuries received when struck by a car. Two sons, Robert of Ramey, Puerto Rico, and Edward, of Sheboygan, survive him.

Nations like Sweden and the United States of America, which have been able to make the relatively small investment involved in a sound public-health program, have reaped a rich harvest in life capital as a result.—C. E. A. Winslow, The Cost of Sickness and the Price of Health, WHO Monograph Series, No. 7, 1951.

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Laboratory Fees in Hospital	5.00	10.00	15.00	20.00
Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
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Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00
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Of General Interest

Dr. Robert N. Barr, deputy executive officer of the Minnesota Department of Health, spoke on the status of public health in Minnesota, at the annual meeting of the Koochiching County Public Health Nursing Advisory Committee, held September 22, at International Falls.

* * *

Three new doctors in the area—**Drs. Milton Kaiser**, New Ulm, **Rueben Rayner** and **Harley Raser**, Gibbon, joined the Brown-Redwood-Watonwan County Medical Society, September 18, at the regular meeting.

* * *

Presenting papers at the American College of Surgeons meeting held in New York September 22-27 were **Drs. Yoshio Sako** and **Richard L. Varco** of the University of Minnesota and seventeen members of the Mayo Clinic staff. The Mayo Clinic members were **Drs. G. S. Baker, E. A. Banner, W. H. Bicker, H. W. Dodge, F. A. Figi, J. H Grindlay, G. A. Hallenbeck, S. W. Harrington, F. Z. Havens, E. D. Henderson, J. M. Janes, E. S. Judd, J. W. Kirklin, K. A. Lofgren, J. T. Priestley, Grace Roth** and **G. J. Thompson.**

Dr. Priestley is a member of the Board of Governors of the College and of the Committee on Graduate Training in Surgery.

* * *

Dr. Arthur H. Wells, pathologist, St. Luke's Hospital, Duluth, spoke on advances in cancer research, at a meeting of the American Cancer Society, Duluth District, September 10. Dr. Wells recently attended the Second National Cancer Conference in Cincinnati, Ohio.

* * *

Dr. D. R. Hastings, director of Glen Lake Sanatorium out-patient department, spoke to the members of the board of directors of the Hennepin County Tuberculosis Association on September 19 on nutrition needs of persons who have or have had tuberculosis.

* * *

Dr. Alfred Uihlein, Mayo Clinic neurologic surgeon, was elected to the Board of Trustees of Shattuck Military School, Faribault, in September.

* * *

Dr. J. S. Lundy, Rochester, has been appointed a member of the Mineral Springs Sanatorium Commission. He replaces John T. Lemmon in September.

* * *

Dr. Fred G. Carter, former superintendent of Ancker Hospital, Saint Paul, now administrator of St. Luke's Hospital in Cleveland, was given an award of merit for his "leadership and vision . . ." by the American Hospital Association, September 18. Dr. Carter was superintendent of Ancker Hospital from 1924 to 1935 and assistant superintendent for four years prior to 1924.

* * *

Dr. Robert N. Barr and **Helen L. Knudsen** of the State Board of Health, conducted a meeting at Cloquet, October 6, to present the hospital needs of the area to the people of Carlton County.

* * *

Lake County will be the first Minnesota county to sponsor an x-ray survey for the second time. Dr. John A. Jumer, county chairman of the survey, said that the actual x-raying will begin November 17.

* * *

Drs. William R. Blomberg and **Theron W. Nelson** of Princeton; **Drs. Ernest S. Hagquist** and **Clarence J. Henry,** Milaca, were ordered to report for preinduction physical examinations, September 26.

* * *

Eleven Twin City physicians became fellows in the American College of Surgeons, September 26. They were: **Drs. Samuel Beirstein, Lyman B. Clay, Edgar G. Ingalls, Jr., Arnold J. Kremen, Floyd J. Lewis, Virgil J. P. Lundquist, Malvin J. Nydahl, Lloyd F. Sherman, Joseph P. Spano, John P. Wendland,** and **Richard L. Varco.**

* * *

Dr. Robert B. Howard, instructor, and **Dr. Carleton Chapman,** associate professor, School of Medicine, University of Minnesota, spoke at the annual Farm Bureau Women's Short Course held at the University Farm in Saint Paul, September 9 to 12. Dr. Howard spoke on problems of the aged and Dr. Chapman on diet and disease.

* * *

Dr. H. L. Smith, Mayo Clinic staff, addressed the St. Louis Academy of General Practice at St. Louis, Missouri, September 23, on "The Movements and Sounds of Heart Valves."

* * *

Dr. Andrew A. Gage, Buffalo, New York, joined the recently incorporated Hartfiel Medical Center, in September. Dr. Gage is a 1944 graduate of the University of Buffalo School of Medicine and specialized in surgery at Meyer Memorial Hospital, Buffalo, and Veterans Administration Hospital, Batavia, New York. Dr. Gage will be located in Montevideo but will spend part of each week in Maynard.

* * *

Dr. John H. Grindlay, of the Mayo Clinic staff, is one of the three representatives of the American Medical Association named to a joint commission to undertake a study of surgical materials; data of the study to be made available to all surgeons. Others on the AMA team are Dr. Ralph E. DeForest of Chicago and Dr. I. Mims Gage of New Orleans.

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The joint commission is made up of the American Academy of Orthopedic Surgeons, American College of Surgeons, American Surgical Trade Association and the AMA.

* * *

Drs. Seigfried Oeljen and **R. D. Davis** of Waseca, received orders to report for their physical examinations, September 30, prior to possible induction into the Armed Forces.

* * *

Dr. E. J. Engberg, superintendent of the Minnesota State School and Colony, Faribault, was re-elected president of the Rice County Public Health Association at the annual meeting, September 25.

Attending the twenty-eighth annual meeting of the Alumni Association of the Mayo Foundation, September 26-27, were **Drs. Walter G. Benjamin,** Pipestone; **H. A. N. Mattson, O. H. Wangensteen, R. M. Wilder, Jr., J. M. Hayes, Thomas J. Kinsella, L. M. Larson** and **Clyde M. Cabot** of Minneapolis; **E. E. Christensen,** Winona; **W. P. Freligh,** Albert Lea; **P. W. Harrison,** Worthington; **R. W. Kearney,** Mankato; and **T. O. Young,** Duluth.

* * *

Winners of Minnesota Medical Foundation scholarships were Duane Flagstad, St. James; and Maynard E. Jacobson, South Saint Paul. They and eleven other University of Minnesota medical students each re-

Migraine In Children

"Migraine may appear during the first years of life. The presence of subjective signs, such as headache and flimmer scotoma, is often difficult to determine in young children. The true nature of the symptoms frequently remains obscure for years."

Vahlquist, B. and Hackzell, G.: Acta Paediatrica *38*: 622 (1949).

NO. OF CASES	SEX	AGE AT ONSET	CYCLIC VOMITING	DURATION OF ATTACK	INTENSITY
31	8 ♀ 23 ♂	3 yrs. (mean)	3 out of 31	2½ hrs.	severe in all cases

TABLE CONT'D

NO. OF CASES	UNILATERAL HEADACHE	NAUSEA	FLIMMER SCOTOMA	VERTIGO	HEREDITY
31	18 out of 31	31 out of 31	12 out of 31	6 out of 31	20 out of 31

(reference given above)

In a study of 400 adult migraine patients, it was revealed that 34% had suffered attacks before the age of 15.* These investigators concluded that childhood migraine was a much greater clinical problem than was previously believed and that psychodynamic mechanisms played an important part in the disease.

These criteria are useful in diagnosis:

Headache attacks with symptom-free intervals plus (at least two of the following) nausea, scintillating scotoma, hemicrania, and hereditary predisposition.

For symptomatic relief in these cases, Cafergot®, N.N.R. (ergotamine with caffeine) may be administered orally. For best results, give adequate dosage promptly.

For children within the age range 7 to 12 years—Cafergot® is administered, one tablet when the attack appears imminent followed by one additional tablet within 30 minutes. Not more than two Cafergot tablets should be administered to children within this age range.

In the adolescent age group, 12 to 18 years of age, the dosage may gradually be increased as necessary up to the usual adult dose, i.e., two tablets when the attack appears imminent followed by one tablet doses at half hour intervals until the attack is aborted. *(Total maximum dose for adults: six tablets for each attack.)*

*Katz, J., Friedman, A.P., and Gisolfi, A.: New York State J. Med. *50*: 2269 (Oct.) 1950.

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ceived a $500 check, October 2, from **Dr. Owen Wangensteen,** president of the Foundation and head of the University's department of Surgery.

* * *

The documentary short film, "Your Doctor," has received the indorsement of the doctors in Wabasha County. **Dr. Doreen Martin,** president of the Wabasha County Medical Society, said that the film shows the problems of practicing in rural communities and the relationship of a practicing physician to his professional organizations.

* * *

Dr. A. B. Hagedorn, Mayo Clinic, spoke on the anemias to the members of the Southwestern Minnesota Medical Society and auxiliary at the regular meeting of the Society at Worthington, September 29.

* * *

Drs. Thomas J. Sisterman and **Edward P. Donatelle** opened a new medical clinic at Fifty-fourth Street and Penn Avenue South, Minneapolis, in September.

* * *

A testimonial banquet for **Dr. Harry N. Sutherland** of Shipman Hospital staff and health officer for the Ely community, was held in Ely September 30. The event was planned jointly with the Tuberculosis and Health Association of St. Louis County. Besides having presided at the births of about 3,000 of Ely's population, Dr. Sutherland was in charge of the first mobile x-ray survey conducted in the world.

* * *

Dr. George F. Lull, secretary and general manager of the AMA, was married to **Miss Mildred Louise Backman** on September 10, at Fremont, Nebraska. Miss Backman has served in a secretarial capacity for the AMA Council in Medical Service for several years. Dr. and Mrs. Lull have gone to Athens, Greece, where Dr. Lull will attend the annual meeting of The World Health Association.

* * *

An anesthetic machine was presented to the Luverne Hospital board, Luverne, September 17, as a memorial to **Dr. O. W. Anderson** who died this spring.

* * *

Dr. S. T. Kucera, Northfield Hospital staff, spoke at the annual silver tea of the Northfield City Hospital Auxiliary, September 19. Dr. Kucera accented the crowded conditions and stressed the need of enlarging present facilities.

* * *

Dr. Thomas Lowry, chief of staff at Minneapolis General Hospital, outlined the hospital's functions, organization, facilities and staff to the hospital committee, September 26. The hospital committee was organized by the Citizens League of Greater Minneapolis to study the city and county needs for a new general hospital.

* * *

Concluding more than forty-eight years of service to the community, **Dr. J. W. Preisinger,** Renville,

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was honored at a retirement dinner, September 15. **Dr. Robert B. Pierce,** on behalf of the Renville Civic and Commerce Association, presented Dr. Preisinger with a pen and pencil set.

* * *

Dr. Donald P. Chance, on the surgical staff of the Mayo Clinic, was married Septmember 10 to Marie Elizabeth Gartley, member of the anesthesia staff at the Mayo Clinic.

* * *

Dr. Frederic J. Kottke, director of the division of physical medicine at the University of Minnesota, spoke on aid to the handicapped at the second annual meeting of the Duluth Rehabilitation Center, Inc.

* * *

The Sheard-Sanford Photelometer Royalty Award for 1952 was presented to **Dr. Frank D. Mann,** Mayo Clinic staff, department of clinical pathology, at the meeting of the American Society of Clinical Pathologists held in Chicago, October 12-17. The award of $500 is given "in recognition of meritorious research work by a member of the society under the age of forty years."

* * *

Dedication of **Frank C. Mann Hall** in the new Medical Sciences building, Rochester, September 26, honored a career of thirty-eight years of medical research. **Dr. Mann** retired from the Mayo Clinic and Mayo Foundation on October 1.

Dr. Mann came to Rochester in 1914 to serve as director of experimental medicine at the Mayo Clinic and to take charge of the pathologic anatomy service that had been established by the late Dr. Louis B. Wilson in 1905. When the Mayo Foundation was created in 1915 as a part of the Graduate School of the University of Minnesota, Dr. Mann became assistant professor of experimental surgery and pathology. He became a full professor in 1921.

In 1932, Dr. Mann was awarded the William Wood Gerhard gold medal of the Philadelphia Pathological society, and in 1937 Georgetown University conferred an honorary degree of doctor of science on him. A year later Indiana University honored him with the degree of doctor of laws. In 1950, he became one of the only two members of the staff of the Mayo Clinic and Mayo Foundation to be elected to membership in the National Academy of Sciences. The other Rochester man similarly honored was **Dr. E. C. Kendall.**

* * *

Dr. M. M. Williams, assistant superintendent and medical director of Ah-Gwah-Ching, the Minnesota State Sanatorium near Walker, was named president of the institution by F. W. Nichols, state director of social welfare, October 1. Dr. Williams continues as medical director under the new appointment.

Dr. Williams joined the sanatorium as a staff physician in 1936, remaining there until 1943, when he left to serve in the army for four years. During

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this period he spent two years as a chest disease specialist at Fitzsimons General Hospital, Denver, Colorado.

* * *

To be married, December 20, are Marilyn Clark, Duluth, and **Dr. Roger Stanley Johnson,** Deephaven. Dr. Johnson was graduated from the University of Minnesota Medical School and interned at Ancker Hospital, Saint Paul. Miss Clark is a graduate of the University of Minnesota School of Nursing and the School of Public Health.

* * *

Dr. Donald C. Balfour, director emeritus of the Mayo Foundation and professor of surgery in the Foundation, delivered the Seventh Martin Memorial lecture at the recent presidential meeting of the American College of Surgeons in Chicago.

* * *

Four doctors from the Plainview area who reported for physical examinations, September 30, prior to induction into the armed forces, were **Drs. D. G. Mahle,** Plainview; **E. W. Ellis,** Elgin; **C. G. Ochsner** and **B. J. Bouquet,** Wabasha.

* * *

Dr. William R. Jones spoke on "The Vote" when giving the outgoing president's address to the Hennepin County Medical Society, October 6. **Dr. Claude J. Ehrenberg** became the new president and Dr. Jones, chairman of the board.

* * *

Dr. J. Gordon Beaton joined **Drs. S. T. Kucera** and **G. N. Rysgaard** in their offices in the Medical Arts Building, Northfield, in September. Dr. Beaton was graduated from the University of Minnesota School of Medicine and had his internship in Baltimore. During World War II, he served with the United States Public Health Service; after the war he did graduate work in internal medicine. Before coming to Northfield, Dr. Beaton practiced for a year and a half at New Ulm.

* * *

Dr. W. F. Wilson, Lake City, was elected secretary and treasurer of the Wabasha County Medical Society for the fifty-seventh time at the annual meeting held at Plainview in October. Dr. Wilson was first elected to the position of secretary-treasurer in 1896 and has been re-elected annually ever since. **Dr. E. C. Bayley,** Lake City, was elected president; **Dr. C. G. Ochsner,** Wabasha, vice president; **Dr. B. A. Flesche,** Lake City, assistant secretary. Dr. Bayley was also named delegate to the state convention.

Speakers at the meeting included **Dr. Dorene Martin,** Pepin, formerly of Wabasha; **Drs. D. J. Erickson, Haddon M. Carryer, J. A. Bargen** and **R. L. Kennedy** of the Mayo Clinic; and **Drs. Percy T. Watson** and **John T. Smiley** of the State Board of Health.

HOSPITAL NEWS

The new **Hudson Memorial Hospital**, a fireproof building, to cost $430,000 is tentatively set to open in late November. It is located in a wooded plateau on Liberty Hill overlooking the St. Croix river and will have a capacity of thirty-two beds.

The hospital has received no government aid. Steps were taken in providing a hospital for Hudson with the establishment of the William H. Phipps Foundation by Mr. and Mrs. Stephen C. Phipps in 1946. To this sum was added a substantial gift by Mr. and Mrs. Charles A. Ward and $40,000, as well as the hospital site, by the city of Hudson.

Architects for the two-story red brick building are Ellerbe and Company of Saint Paul. The general contractor is the Olson Construction Company of Stillwater. All rooms are equipped with large picture windows and central oxygen supply is piped to each room. Static electricity is eliminated by special floor surfacing.

The new hospital will supply first-class hospital accommodations for the city of Hudson and the St. Croix valley from Stillwater to Afton.

* * *

Dedication services for the multi-million dollar enlargement of the **Medical Sciences** building of the **Mayo Clinic** and the **Mayo Foundation for Medical Education and Research** were held September 26 and 27, 1952, at Rochester.

Bronze statues of the Doctors Mayo were unveiled by Dr. C. W. Mayo, son of Dr. Charles Mayo and Mrs. D. C. Balfour, daughter of Dr. Will Mayo. The statues of the two brothers stand beside that of their father, Dr. William Worrall Mayo.

Dr. Vannevar Bush, president of the Carnegie Institution of Washington, spoke at the opening ceremony. Speakers during the dedication included Dr. Owen Wangensteen, former Mayo fellow and chief of surgery at the University of Minnesota, who talked on the impact of physiology on surgery; Dr. Lester R. Dragstedt, chairman of surgery, University of Chicago, spoke on contributions of experimental medicine to knowledge of peptic ulcers; and Dr. Chester M. Jones, clinical professor of medicine, Harvard University, and physician at Massachusetts General Hospital, Boston, spoke on the role of experimental medicine in understanding the function of the liver.

One part of the new building, now remodeled, was put up in 1941. The five-story addition with two underground levels more than triples the floor space. Most of the buildings' space is devoted to research and medical education facilities.

* * *

Dedication services for the new **St. Francis Hospital** at Breckenridge were held September 17, 1952. Dr. Roger Kennedy, president of the Minnesota State Medical Association, participated in the ceremonies along with Gov. C. Elmer Anderson, Gov. Norman

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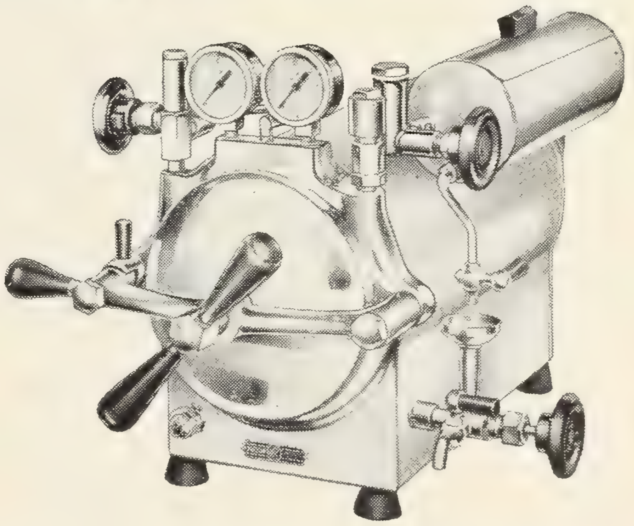

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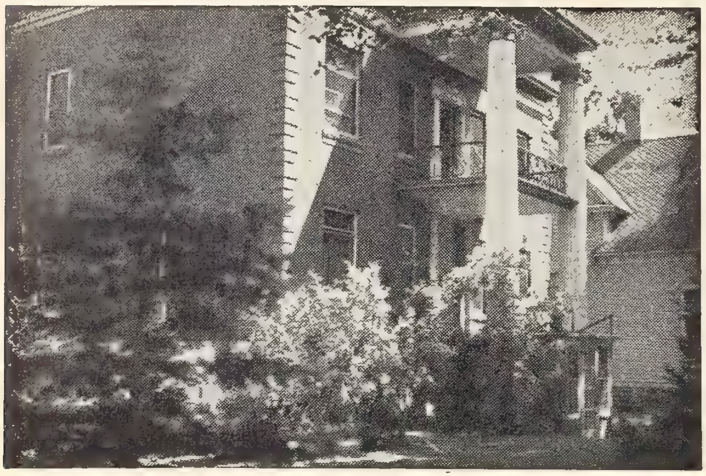

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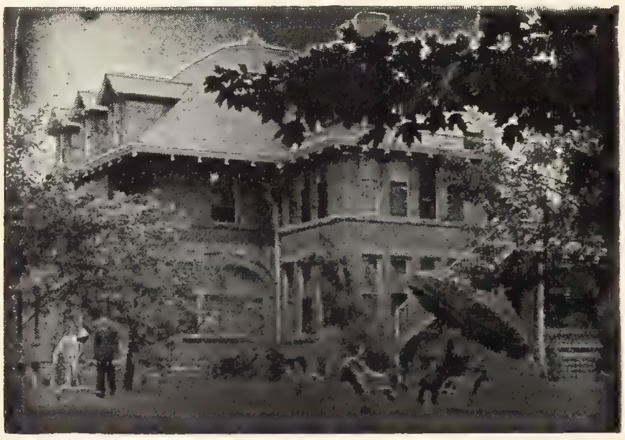

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* * *

A new twenty-four bed **psychiatric center for children** at the University of Minnesota is expected to open this month. The new unit will not only provide better patient care but also a better opportunity for research, and training physicians and nurses. It will include facilities for recreational and occupational therapy.

The center was set up with a $115,000 grant from the 1951 Legislature. Dr. Irvine McQuarrie, head of the pediatrics department, said only a few states have comparable facilities. The center will be the first in the state for exclusive hospitalization of mentally ill children.

Dr. Reynold Jensen, professor of pediatrics, will be the medical director of the unit. His staff will include Dr. Jack Wallinga, psychiatrist; Wendell Quast, senior clinical psychologist, and Elsworth Stenswick, speech clinician.

* * *

Minnesota has one of the lowest rates of draftee rejection for reasons of physical, mental and moral unfitness for military service—20 per cent. Our state shares this distinction with Kansas and North Dakota. In comparison, South Carolina boys were turned down at a rate of 63 per cent, 56 per cent in Arkansas and over 50 per cent in Alabama, Georgia and Mississippi.—Christmas Seal Health News Service.

BLUE CROSS-BLUE SHIELD NEWS

Blue Shield

With revised Blue Shield contract and Schedule of Payments in effect and distributed to both physicians and subscribers on the first of October, a more active professional and public relations program is being geared for immediate action. In fact, such a plan includes talks and question and answer sessions at staff and medical meetings, a revitalized correspondence department, and the compilation and preparation of a physician's manual for later distribution. While this plan is at present in its initial and formative stages, there is already evidence of general acceptability and success.

During the program's first two weeks, three invitations were received to discuss the new benefits and contract at hospital staff, medical and group leader meetings. These assignments are covered by the medical director and either Mr. Ben Stephens, Jr., who is serving as Acting Manager of the Claims Department, or Mr. Robert Kermott, who is organizing the Professional and Public Relation section of Blue Shield. In talks already given and for those at present scheduled, formal remarks of the speaker are very brief following which those in attendance are encouraged to ask questions regarding any or all features of the Blue Shield program.

Through the past several months two meetings of receptionists, secretaries and office nurses have been held to clarify all matters of filing claims. In addition to the meetings with physicians as discussed, an effort is to be made to meet with the persons in the doctors' offices and to organize such meetings in rural districts about the state. However, further steps in this phase of the work can be taken only with additional help as the program develops.

Another feature of the present plan is the tentative reorganization of the correspondence and telephone inquiry section. All in-coming mail is being classified and routed to persons who are best trained and qualified to answer it. Mail is being answered much more rapidly with emphasis placed upon promptness and complete explanation of all contract features involved. This policy, in effect for several months, applies to all letters, those of subscribers as well as physicians. The effectiveness is apparent in that there are fewer letters of inquiry and complaint from both doctors and subscribers, and there has been some increase in the number of "thank you" and appreciation letters.

Work on a physician's and procedure manual was started several months ago. One of the first moves in this direction was the assembling of such manuals from as many other Blue Shield plans as possible. This having been done, selection, organization and preparation of material most needed and used by doctors and their office personnel has been and is under way. Final completion of this project is not in prospect for some time insofar as the material presented by such a manual will depend upon findings from a review of other such manuals, nature and volume of complaints and inquiries now and in the past received, and the impressions gained from the more active and energetic professional and public relations program.

This entire project is being developed as a co-operative and educational program for both subscribers and doctors. Its helpfulness and success will depend upon the requests and suggestions regarding it received from the practicing physicians of the state.

Blue Cross

Blue Cross has been in existence nationally since 1933, Minnesota being one of the pioneer Plans, and it was not until January 1, 1937 that enrollment nationally passed the half-million mark.

In the fifteen-year period between January 1, 1937 and January 1, 1952 the population of this country increased about 19 per cent. General hospital admissions increased, however, no less than 104 per cent, but Blue Cross membership during these fifteen years increased sixty-three times to hit the total of 38,515,000. On July 1 of this year, national Blue Cross enrollment stood at 39,462,000. That is an increase of more than sixty-four times over what it was on January 1, 1937.

Let us take a shorter perspective. Hospital admissions in the United States increased from 15,829,000 in 1947 to 18,237,000 in 1951. That is a net increase of 2,408,000 annual admissions. During these same years, Blue Cross membership in the United States increased from 27,532,000 to 38,515,000, an increase of 10,983,000 participant subscribers. For the whole span of the fifteen-year period we have considered, Blue Cross enrollment in-

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creased at the rate of more than 2,500,000 new participants per year.

Fifteen years ago Blue Cross covered a fraction of 1 per cent of the American people. Today it covers 25.7 per cent of the people. If management in the Steel industry, the automobile industry, and many other industries covered by Blue Cross did not think Blue Cross the most adequate and effective method of financing hospital services; if the Farm Bureau and the Grange, the many trade associations, and the million of individuals covered by Blue Cross did not think so, could Blue Cross have grown so consistently from year to year? Could it have achieved the phenomenal manifestation of public acceptance that it has?

In 1951 Blue Cross payments to all hospitals in the United States amounted to $443,902,000. That was 26.1 per cent of hospital income. The important fact then is that while Blue Cross covered 24.9 per cent of the people, it paid 26.1 per cent of the national hospital bill. This information is furnished you in view of the interest that the Federal government appears to have in the problem of financing health services to the people. The Federal government, the nation's largest employer, the one most vocal on this problem, has yet failed to make any provision for helping its own employes and their dependents to get any kind of financing of their health needs. The Federal government has failed so far to take so rudimentary a step as the allowing of payroll deductions in order to facilitate medical-hospital group coverage for its employes.

Increasing numbers of the nation's large employers are recognizing the desirability of making a contribution to the financing of health services for their employes. Why is the Federal government so far behind private industry? Is there a wish on the part of some not to be too successful in solving by voluntary means an acute social problem that has often provided useful political ammunition?

The phenomenal public acceptance Blue Cross and Blue Shield have won in so short a time from every segment of the population shows that the people find Blue Cross and Blue Shield the most adequate and most effective method of financing hospital and medical services. Blue Cross and Blue Shield have developed a national program which uses its local strength to meet national needs. Through their many devices for enrolling every type of group, Blue Cross and Blue Shield have revealed their intention and their ability to develop into a universal system of hospital and medical service serving the whole community.

Financial

During the first eight months of 1952, $2,478,592 has been paid out by the Blue Shield Plan to doctors of medicine for services rendered to Blue Shield subscribers, and Blue Cross has paid out $8,269,971 to hospitals for services rendered to Blue Cross subscribers.

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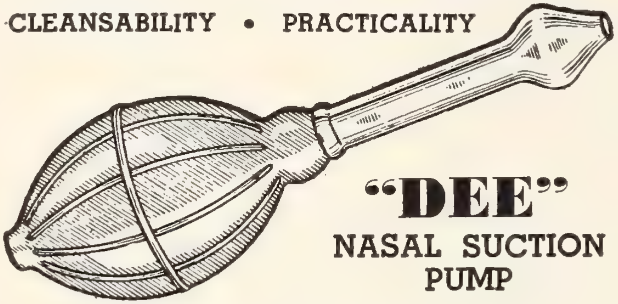

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

SYNOPSIS OF OBSTETRICS. Fourth Edition. J. C. Litzenberg, B.Sc., M.D., F.A.C.S. Late Professor Emeritus of Obstetrics and Gynecology, University of Minnesota Medical School, Minneapolis; revised by Charles E. McLennan, M.D., Professor of Obstetrics and Gynecology, Stanford University School of Medicine, San Francisco. 368 pages. Illus. Price $5.50, flexible binding. St. Louis: C. V. Mosby Co., 1952.

SYNOPSIS OF PATHOLOGY. Third Edition. W. A. D. Anderson, M.A., M.D., F.A.C.P. Professor of Pathology, Marquette University School of Medicine, Pathologist, St. Joseph's Hospital, Milwaukee, Wisconsin. 788 pages. Illus. Price $8.00, flexible binding. St. Louis: C. V. Mosby Co., 1952.

THE HISTORY OF AMERICAN EPIDEMIOLOGY. C. E. Winslow, Dr. P.H., Professor Emeritus, Yale University School of Medicine, editor, American Journal of Public Health; Wilson G. Smillie, M.D., Professor and Chairman, Department of Public Health and Preventive Medicine, Cornell University Medical College; James A. Doull, M.D., Medical Director, Leonard Wood Memorial (American Leprosy Foundation); John E. Gordon, M.D., Professor and Chairman, Department of Epidemiology, School of Public Health, Harvard University. Edited by Franklin H. Top, M.D., Professor of Epidemiology and Pediatrics, College of Medical Sciences, University of Minnesota. 190 pages. Illus. Price $4.75, cloth. St. Louis: C. V. Mosby Co., 1952.

LOW FAT DIET COOK BOOK. Dorothy Myers Hildreth and Eugene A. Hildreth, M.D. Introduction by Francis C. Wood, M.D. 135 pages. Price $2.95, cloth. New York: Medical Research Press, 1952.

CORRELATIVE NEUROANATOMY AND FUNCTIONAL NEUROLOGY. Sixth Edition. Joseph J. McDonald, M.S., M.Sc.D., M.D., Professor of Surgery, Columbia University; Attending Surgeon, Presbyterian Hospital, New York; Director of the Surgcial Service, Francis Delafield Hospital, New York; and Joseph G. Chusid, A.B., M.D., Attending Neurologist, St. Vincent's Hospital, New York. 263 pages. Illus. Price $4.00, flexible binding, paper cover. Los Altos, California: Lange Medical Publications, 1952.

PROGRESS IN FUNDAMENTAL MEDICINE. Paul Cannon, M.D., University of Chicago; J. A. Cunningham, M.D., University of Alabama; Paul Klemperer, M.D., Mount Sinai Hospital, New York; Albert Kligman, M.D., University of Pennsylvania; G. K. Mallory, Mallory Institute; Tracy B. Mallory, M.D. (deceased), Massachusetts General Hospital; J. C. Paterson, M.D., University of Western Ontario; L. B. Stoddard, M.D., University of Kansas; W. Kenneth Cuyler ,M.D., Duke University; J. P. Wyatt, M.D., St. Louis University. Edited by J. F. A. McManus, M.D., University of Virginia. 316 pages. Illus. Price $9.00, cloth. Philadelphia: Lea & Febiger, 1952.

A 40-YEAR CAMPAIGN AGAINST TUBERCULOSIS. Louis J. Dublin, Ph.D., Second Vice President and Statistician, Metropolitan Life Insurance Company. 115 pages. Illus. Cloth binding. New York: Metropolitan Life Insurance Co., 1952.

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting March 2.
Surgical Anatomy and Clinical Surgery, two weeks, starting March 16.
Surgery of Colon and Rectum, one week, starting November 17, March 2.
Bronchoscopy, one week, by appointment.
General Surgery, one week, starting February 9.
General Surgery, two weeks, starting March 30.
Fractures and Traumatic Surgery, two weeks, starting March 2.

GYNECOLOGY—Intensive Course, two weeks, starting February 16.
Vaginal Approach to Pelvic Surgery, one week, starting March 2.

OBSTETRICS—Intensive Course, two weeks, starting November 3, March 2.

MEDICINE—Intensive General Course, two weeks, starting May 4.
Gastroscopy and Gastroenterology, two weeks starting November 3.

UROLOGY—Two-week Intensive Course starting April 27.
Ten-day Practical Course in Cystoscopy starting every two weeks.

DERMATOLOGY—Intensive Course, two weeks, starting May 4.

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REVIEW OF PHYSIOLOGICAL CHEMISTRY. By Harold A. Harper, Ph.D., Professor of Biology (Biochemistry), University of San Francisco; Lecturer in Surgery, University of California School of Medicine, San Francisco; Biochemist Consultant to Metabolic Research Facility, U. S. Naval Hospital, Oakland; Director, Biochemistry Laboratory, St. Mary's Hospital, San Francisco. 3d ed. 260 pages. Spiral binding. Paper. Price, $3.50. Palo Alto, Calif.: University Medical Publishers, 1951.

In outline form, well indexed and with significant terms underlined, this represents the answer to the crammer's prayer. Its orderly context clear and moderately limited detail will appeal to the student, also. It is an excellent review for state and specialty board examinations.

William J. Hultgen, M.D.

ADVANCES IN PEDIATRICS. Editor, S. Z. Levine, Cornell University Medical College; Associate Editors: Allan M. Butler, Harvard Medical School; Margaret Dann, Cornell University Medical College; L. Emmett Holt, Jr., New York University College of Medicine; A. Ashley Weech, University of Cincinnati College of Medicine. Vol. 5. 273 pages. Illus. Cost $7.00. Chicago: Year Book Publishers, 1952.

This volume, like its predecessors, provides a worthy contribution to current pediatric knowledge. It consists of six articles on subjects of active interest. Three are by American contributors and three, which are on Vitamin K in relation to hemorrhagic disease of the newborn, BCG vaccination, and angiocardiographic studies, are from Denmark and Sweden. The subjects are written by those actively engaged in the field and are comprehensively covered. Particularly is this true of the article on the nephrotic syndrome in children. The remaining topics discussed are treatment of the bacterial meningitides and iron metabolism.

Pediatricians in particular will be grateful to the editors and contributors for this fine presentation of material enabling them to keep abreast of the latest information in these important fields.

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Covering the subjects of anatomy, physiology, biochemistry, microbiology, pathology, pharmacology, surgery, medicine, obstetrics, gynecology, preventive medicine and public health, and psychiatry, this book is a life saver for the busy practitioner faced with necessity of taking a basic science or medical licensure examination. Also an excellent review for comprehensives.

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The editor is a former member of the National Board of Medical Examiners and is secretary of the Federation of State Medical Boards of the United States.

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ESSENTIALS OF DERMATOLOGY. By Norman Tobias, M.D., Associate Clinical Professor of Dermatology, St. Louis University; Fellow, American Academy of Dermatology and Syphililogy; Diplomate, American Board of Dermatology and Syphilology. 4th ed. 596 pages. Illus. Price $6.50. Philadelphia: Lippincott, 1952.

Norman Tobias presents in his fourth edition a clear, concise and well-organized textbook of dermatology. It is intended for the use of general practitioners and medical students who have neither the time nor inclination to refer to larger standard dermatologic references. The different dermatoses are classified and grouped under different chapter headings according to clinical, anatomic, pathologic, and etiologic concepts. Diagnostic criteria are stressed as well as differential diagnosis.

Treatment is discussed for each disease and is brought up to date. Included are the indications for antibiotics, ACTH, and cortisone in certain dermatoses. A unique and very helpful feature of the book are the discussions of the nursing aspects of each group of skin diseases at the end of their respective chapters. No bibliography is available in the book. For its intended purpose as a usable brief and concise reference in the field of dermatology this book fills the bill. One caution: Because of its brevity and necessary limitations one should not expect to practice dermatology in its entirety from such a text.

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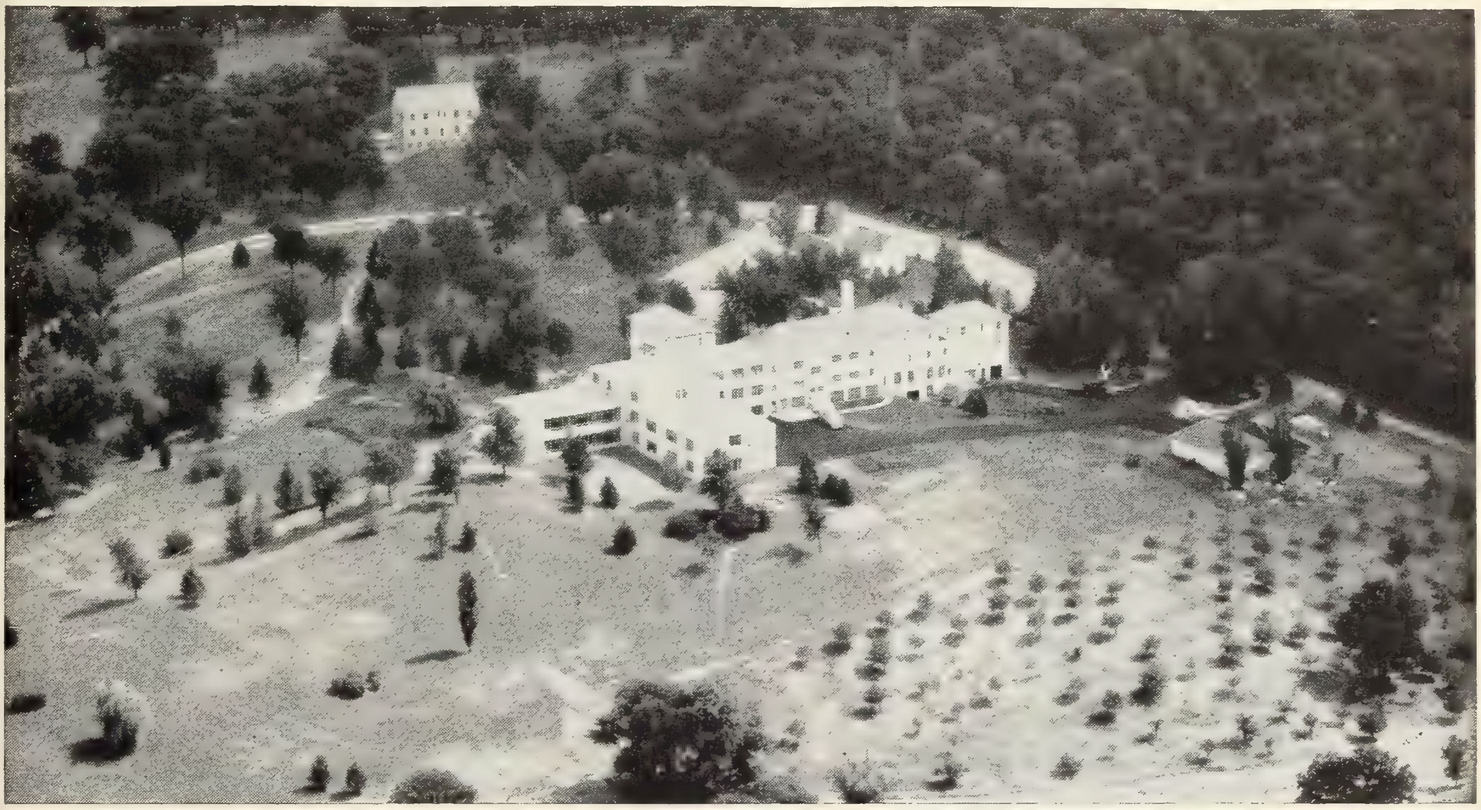

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3. Lennox, W. G., in Cecil, R. L., and Loeb, R. F.: A Textbook of Medicine, ed. 8, Philadelphia, W. B. Saunders Company, 1951, p. 1379.
4. Lennox, W. G., in Piersol, G. M., and Bortz, E. L.: The Cyclopedia of Medicine, Philadelphia, F. A. Davis Company, 1951, Vol. V, p. 215.
5. Christian, H. A.. The Principles and Practice of Medicine, ed. 16, New York, D. Appleton-Century Company, 1947, p. 1370.

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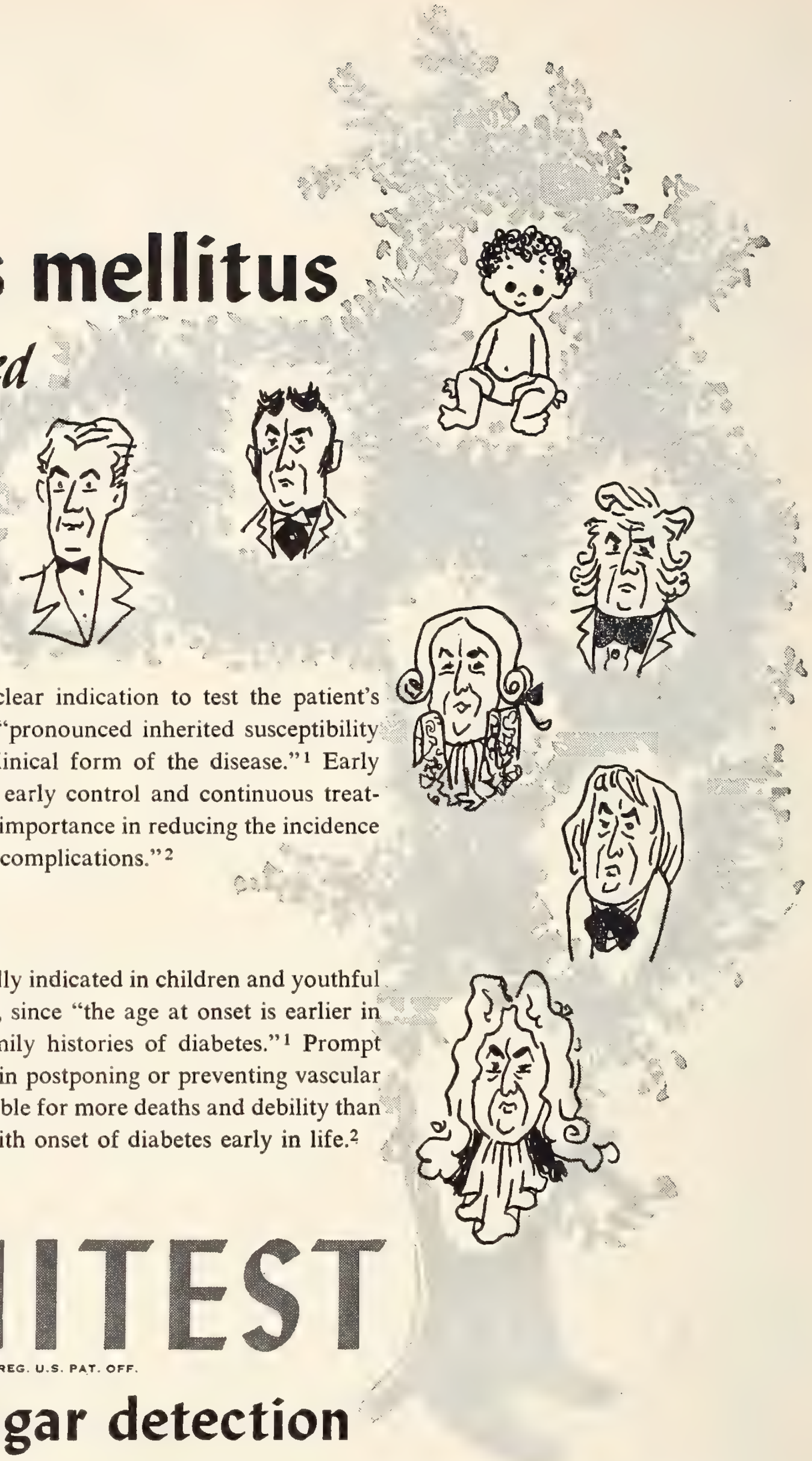

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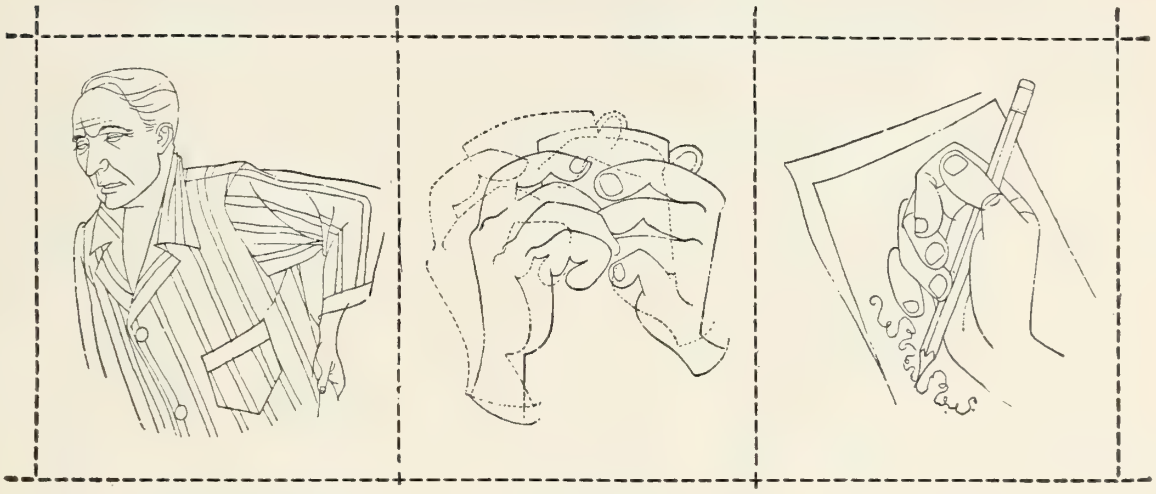

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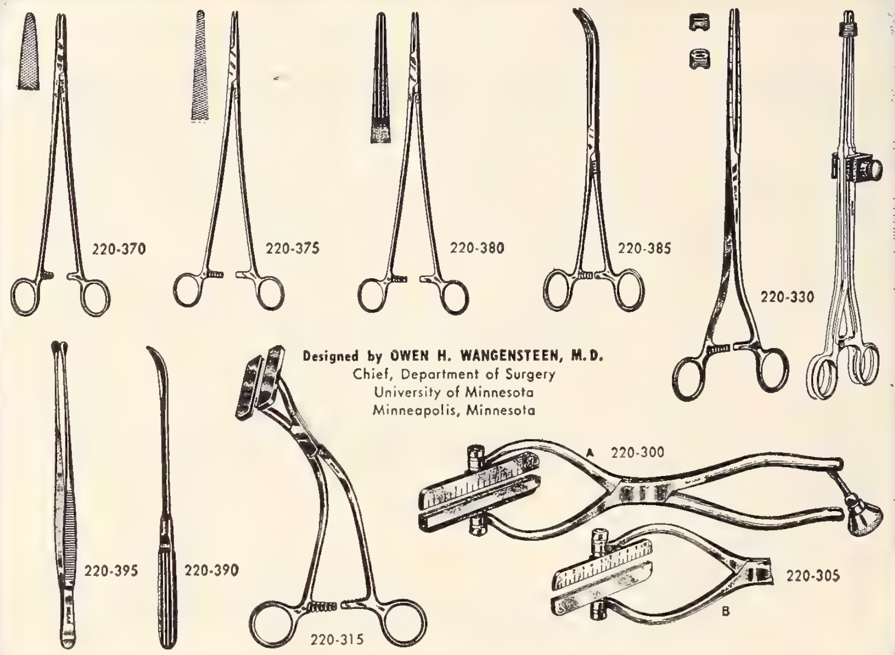

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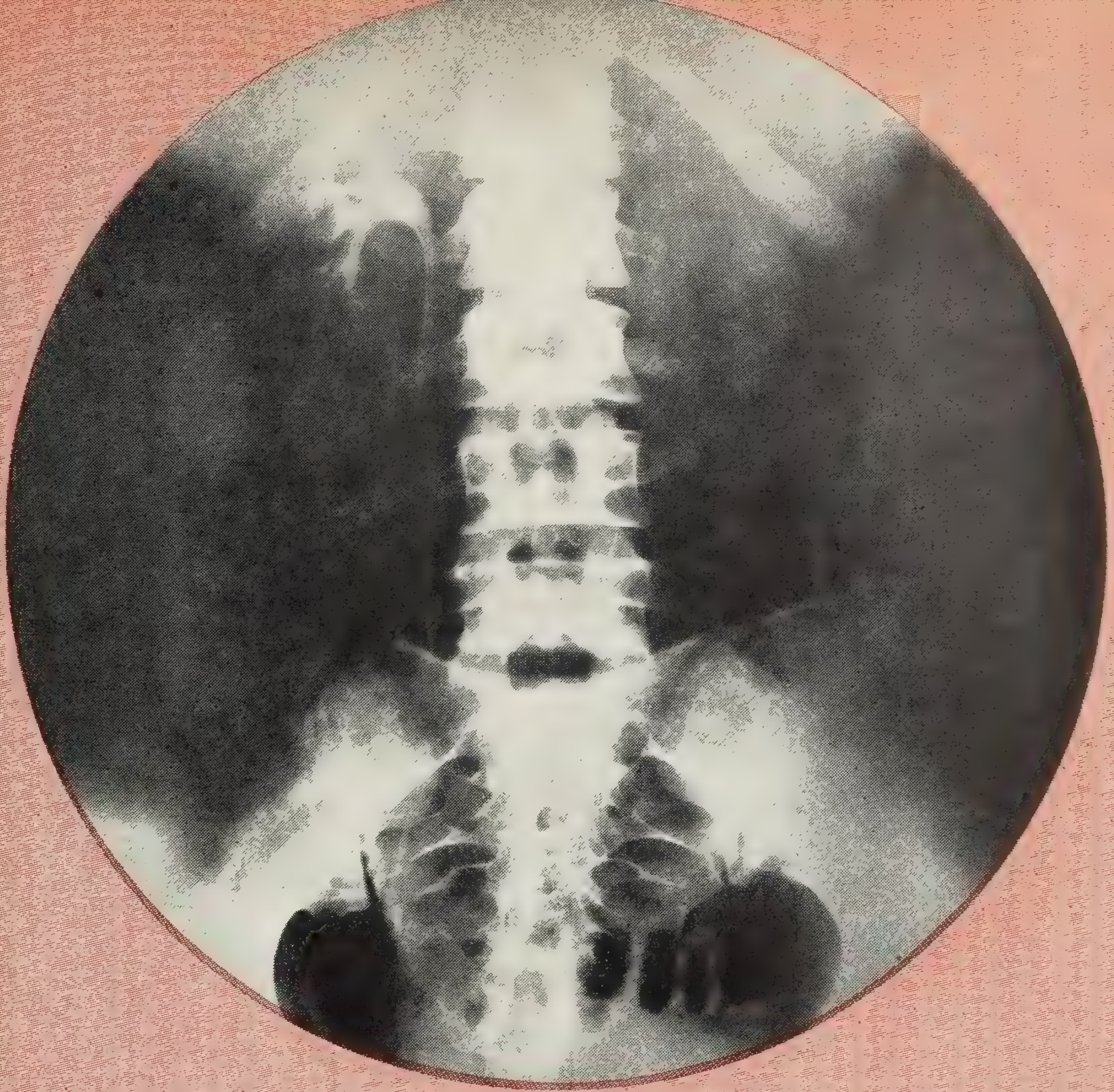

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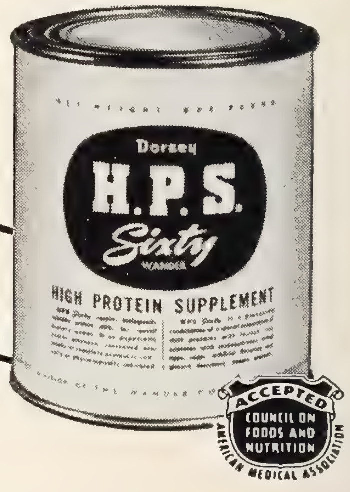

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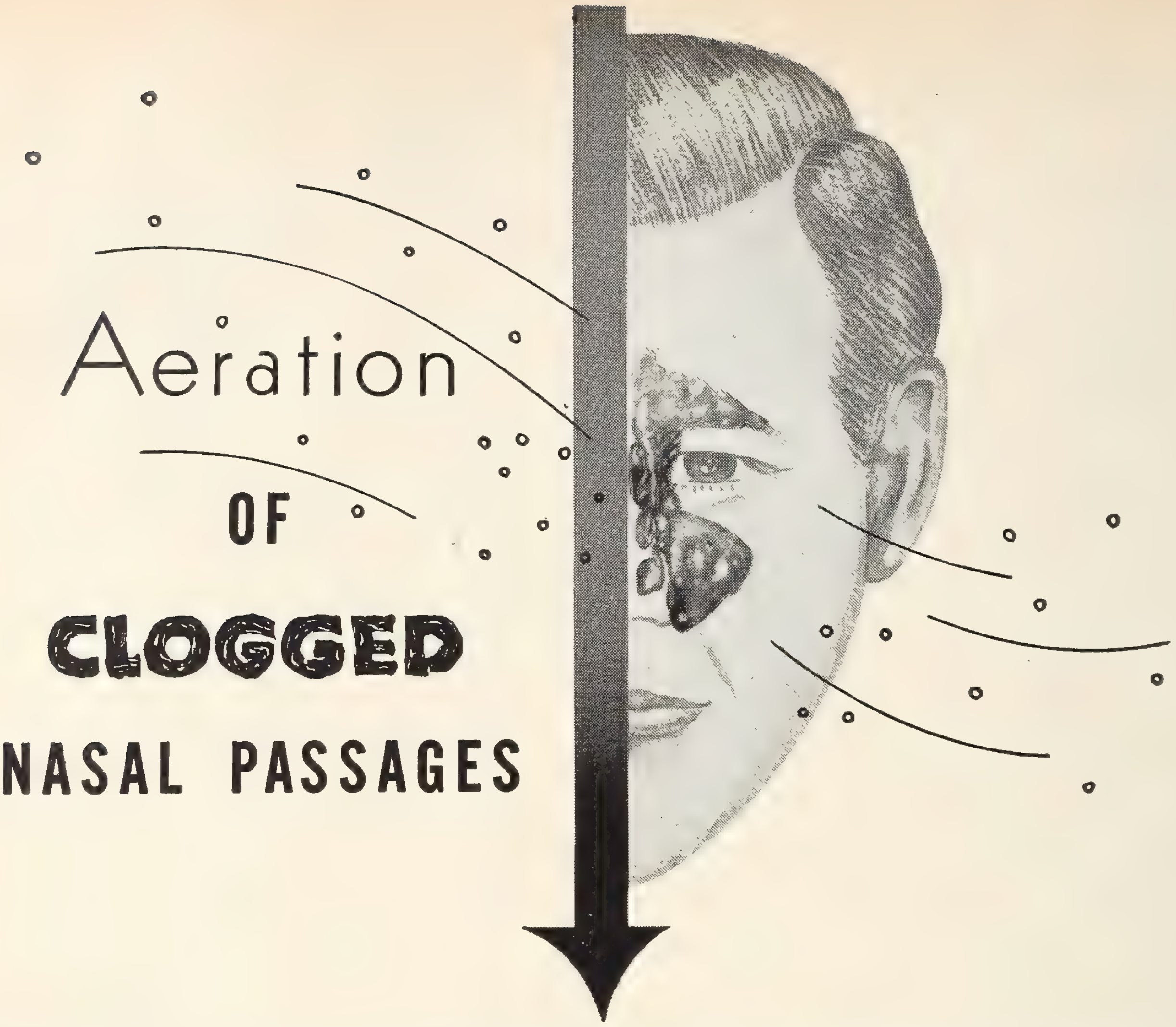

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1. Van Alyea, O. E., and Donnelly, Allen: *Arch. Otolaryng.*, 49:234, Feb., 1949.

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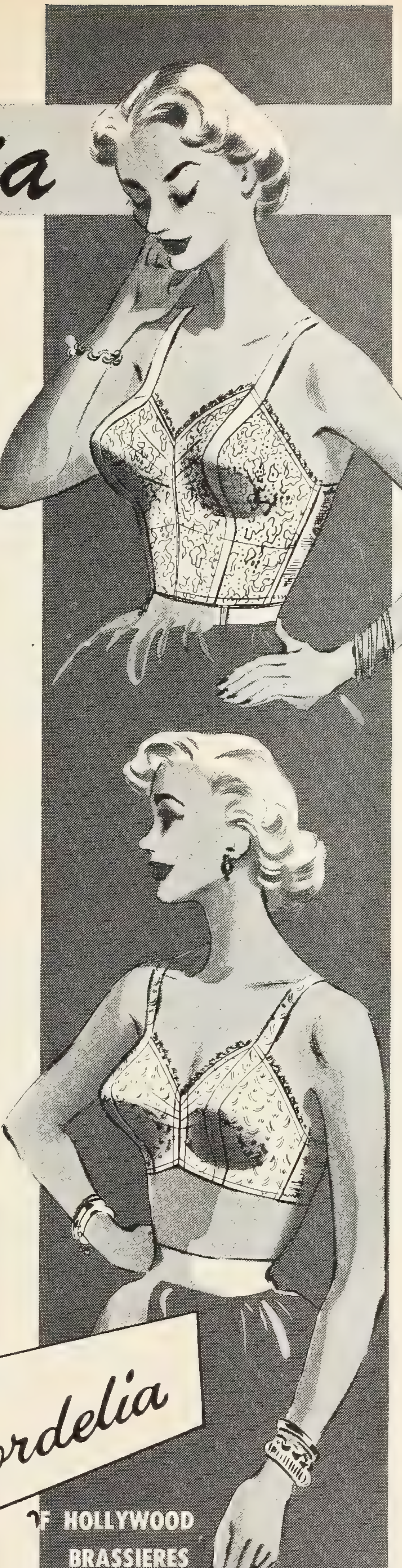

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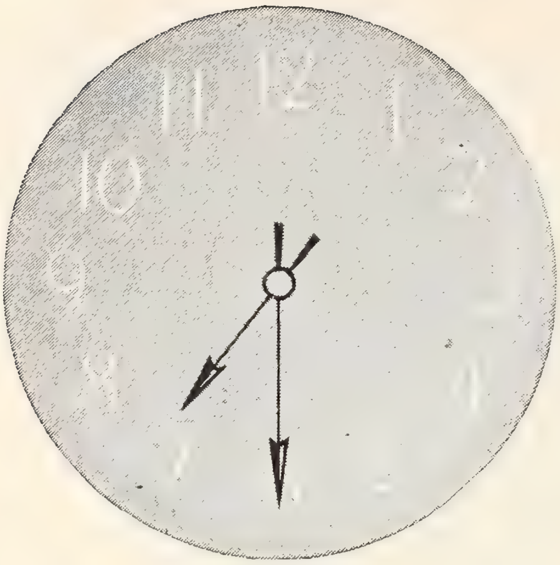

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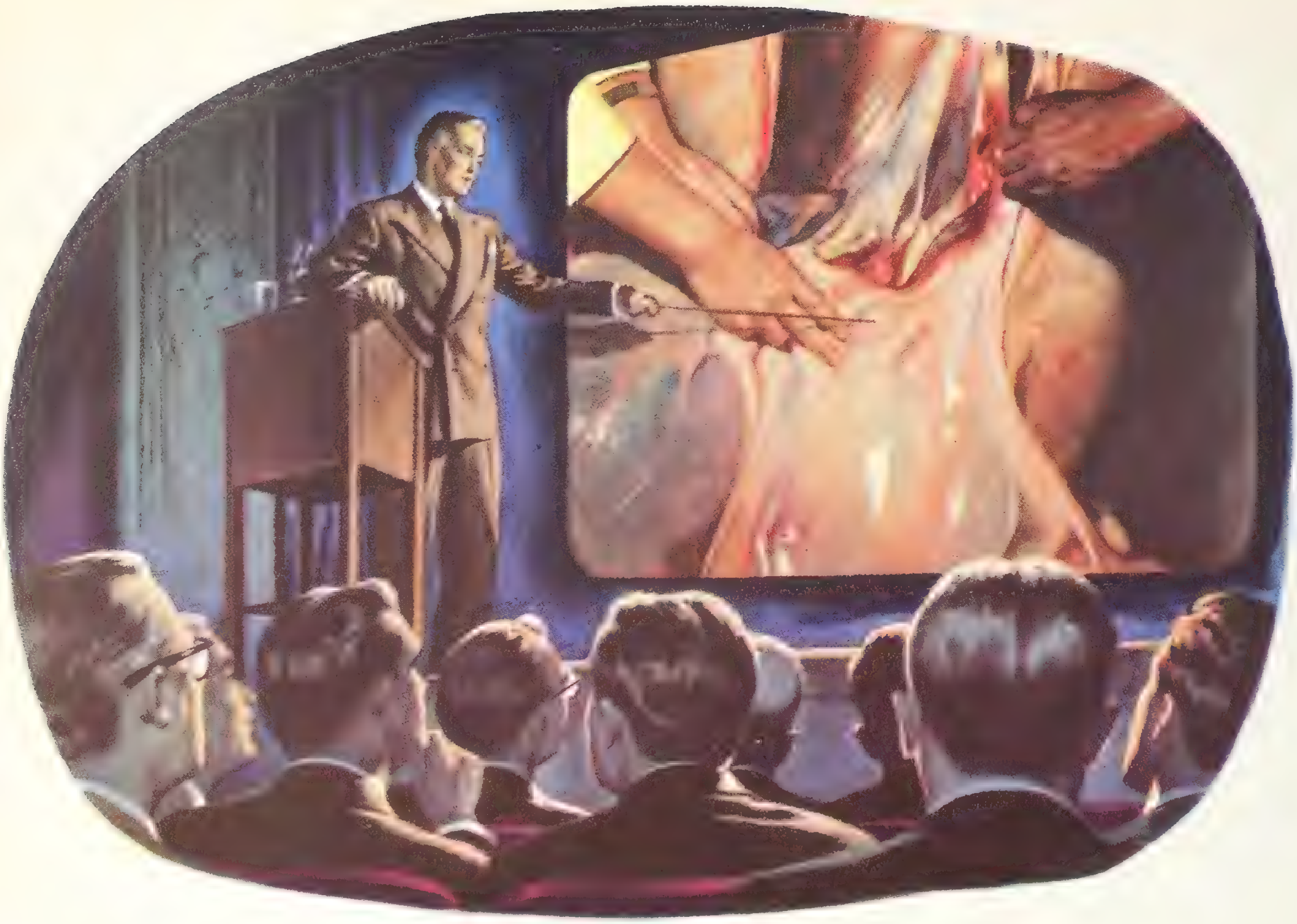

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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 35 December, 1952 Number 12

RECENT ADVANCES IN RESEARCH ON RHEUMATIC FEVER

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Minneapolis, Minnesota

As IN ALL unsolved diseases, we are confronted by three main problems in rheumatic fever. The first is the etiology, which we take to mean the causative agent. The second is the pathogenesis or the mechanism by which the causative agent produces the disease, and the third is the treatment. This paper is concerned with the present state of these problems.

Few diseases have been subjected to such intensive research in so many laboratories all over the world as rheumatic fever. There are two reasons for this. The first is the importance of the disease itself, as a major threat to human welfare. It has been estimated that approximately a quarter of a million people develop rheumatic fever in this country every year.[14] Paul[10] has stated that there are nearly a half million people in America with rheumatic heart disease. In the armed forces it is a formidable problem; approximately 7,500 persons developed the disease each year among military personnel during the last war.[4] It ranks as one of the chief causes of invalidism and death in childhood and early adulthood, and it contributes heavily to the mortality from heart disease in middle age. It is, in short, a major disease.

It is also an extremely complicated disease and the second factor which is a constant stimulus to research on rheumatic fever is this very complexity. It is difficult to study the disease for any length of time without becoming possessed by the feeling that it contains universals: that if we had answers to the questions that it raises we would understand a great deal about human disease in general. Another human ailment has been called the "Great Imitator." Rheumatic Fever might well be called the "Great Original." All parts of the body participate: it is a disease now of the heart, now the brain or the lungs, the kidney, the skin, the spleen, the peritoneal cavity, or the joints and it involves the blood vessels and connective tissues everywhere. It has for some students the appearance of an infection; to others it seems the result of an infection, and to others a misguided defense reaction against an infection. Its conceivable implications for other human diseases extend in all directions, encompassing conditions as unrelated as disseminated lupus erythematosis, Rocky Mountain spotted fever, malignant hypertension, eclampsia, and glomerulonephritis. It constitutes a working model for the study of all diseases of the vascular tree, perhaps including even the changes which occur in aging.

The causative agent in rheumatic fever is the group A hemolytic streptococcus. There is now quite general agreement on this point, with certain qualifications which will be considered in a moment. The supporting data is impressive. Since the initial observations made by Coburn[2] in this country and by Schlesinger[13] abroad, it has been repeatedly confirmed that rheumatic fever is preceded by group A streptococcal infection, that it is commonly associated with the presence of streptococci in the pharynx, and that it is accompanied

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by the development of antibodies against streptococci in titers which are even higher than those usually seen in proven streptococcal infections. The latter point is illustrated by the data reported by Anderson and his co-workers[1] who studied the comparative levels of several varieties of antistreptococcal antibody in the sera of patients with scarlet fever. In one group rheumatic fever occurred as a complication of scarlet fever and these patients developed higher levels of antibody than any of the other individuals in which rheumatic fever did not occur. Much has been made of this difference in the degree of antibody response between rheumatic fever patients and individuals with uncomplicated streptococcal infections. Some have proposed that it implies an abnormal reactivity of the antibody-forming mechanism in rheumatic fever, a notion which can be fitted into the popular theory that the disease is in some way a manifestation of hypersensitivity. A somewhat simpler and equally plausible explanation might be that the patient who develops rheumatic fever has had a more extensive streptococcal infection than his non-rheumatic neighbor, and some support for this may be obtained in the serological data reported by Anderson et al.[1] The lowest levels of antibody in their study occurred in a group of patients treated with penicillin in whom the streptococcus was quickly eradicated from the throat. The next lowest were in a group in which a single type of streptococcus was present. Higher levels were present in patients with multiple types of streptococci and in those in whom streptococci persisted in the throat despite penicillin treatment. Similar findings have been described by others.[22] When penicillin is administered early and in adequate amounts, the antibody response is significantly lower than when the infection is allowed to run its full course. If patients with minimal infections, kept at a minimum with penicillin, develop minimal antibody responses, it is reasonable to suggest that patients with maximal antibody responses may have had maximal infections. This might occur without necessarily being reflected by more severe symptoms or signs of streptococcal infection. There is, in fact, no recognizable relationship between the clinical severity of streptococcal infection and the likelihood of occurrence of rheumatic fever. And there are no methods for judging the real severity or the degree of systemic involvement in streptococcal infections in human beings, other than possibly misleading manifestations such as fever, leukocytosis, or the degree of local discomfort in the throat.

This brings us to one of the great mysteries of rheumatic fever and involves us in the second of our problems, the mechanism of the disease. We have said that the causative agent is the streptococcus, but this requires a serious qualification. At the time when rheumatic fever appears, the clinical manifestations of streptococcal infection have usually subsided completely, and in some instances there is an actual latent period in which the patient looks and feels quite well, between the subsidence of the throat infection and the beginning of rheumatic fever. It is assumed by many that the streptococcal infection has actually disappeared completely before rheumatic fever develops. It is highly inconvenient to propose as an etiologic agent a microorganism which is no longer on the premises when the disease occurs. This is one reason for the currently popular theories in which rheumatic fever is accounted for on the basis of allergy or hypersensitivity. It is possible, however, that we have attached too much significance to the clinical course of the acute streptococcal infection. The disappearance of fever, or the subsidence of pain and swelling in the throat, do not necessarily mean that the streptococcal infection is at an end. Indeed, it is common knowledge that streptococci do persist in the throat for considerable periods after laryngitis or tonsillitis has healed. It is conceivable that the rheumatic fever patient may become more and more deeply involved in streptococcal infection throughout the so-called latent period, and rheumatic fever may represent a continuing streptococcal infection in which the heart, joints, skin, and other tissues are directly damaged by streptococci or the products of streptococci. It is true that streptococcal septicemia cannot be demonstrated in rheumatic fever by blood cultures, but there are two mechanisms in operation which might make it extremely difficult or impossible to demonstrate organisms in the blood. One of these is the presence of a highly effective bactericidal antibody which is uniformly found in the sera of patients with rheumatic fever,[12] and the other is a nonspecific bactericidal substance, demonstrated by Tillett,[15] which appears in the serum of acutely ill patients. Either or both of these agencies could interfere with blood cultures, especially if only occasional showers or very small numbers of streptococci were present in blood. It is also true that penicillin has not been shown to alter significantly the course of rheumatic fever, and this has been taken by some as evidence against the idea that the disease is due to a continuing streptococcal infection. However, if the microorganisms were present inside cells in internal organs, as is the case in brucellosis, it might be impossible to eradicate them with penicillin in spite of the high susceptibility of streptococci to this antibiotic.

There is an exceedingly strong piece of evidence concerning streptococcal infection in rheumatic fever which has been ignored or overlooked for many years. In 1939, Green[5] reported his findings in nine fatal cases of rheumatic fever in Edinburgh. In five of the patients streptococci had been cultured from the throat before death, and each strain was typed serologically. At autopsy, the blood cultures were negative in all cases. But Green also made cultures of whole pieces of heart tissue, including the valves, myocardium and pericardium, and he was able to grow group A beta hemolytic streptococci from the valve tissue in eight of the nine patients. Moreover, each strain recovered was shown to be serologically of the same type as previously found in the antemortem throat cultures.

Green's findings would suggest that his patients with fatal rheumatic fever actually had hemolytic streptococci infecting their heart tissues. This is contrary to all current views of the mechanism of the disease, but the only alternative explanation would be that the observations were in some way a mistake or were due to contamination. It is difficult to see how contamination could have occurred in eight out of nine tries, or involved valve tissues without also involving the blood cultures. The suggestion has been made that the streptococci made their way to the heart as an agonal event, but this also seems implausible in view of the negative blood cultures. The work of Green was confirmed in the following year by Collis,[3] at the Rotunda Hospital in Dublin, who cultured forty-two valves from seventeen patients with fatal cases of rheumatic fever and grew hemolytic streptococci from twenty-two of the forty-two. These studies deserve much more attention than they have received.

TABLE I. PERSISTENCE OF GROUP A STREPTOCOCCI IN TISSUES OF INTRAVENOUSLY-INFECTED RABBITS

Number of Days with Negative Blood Cultures	Number of Rabbits	Number with Positive Organ Cultures	Organ		
			Heart	Kidney	Liver
4	4	1		1	
5	8	2	1	1	2
7	8	2	1		1
Total	20	5	2	2	3

It is usually assumed that the hemolytic streptococcus is a highly virulent organism which, if it passes local tissue barriers, causes overwhelming systemic invasion, septicemia and death. The idea that it may cause systemic infection in a more subtle fashion, or remain dormant in internal organs without giving rise to immediate and violent tissue reactions, is a suggestion which would require much experimental evidence. Studies now in progress in our laboratory have provided some preliminary data to support this suggestion.[21] Twenty rabbits, as a group, were infected by an intravenous injection of living streptococci. Blood cultures were made in each animal every day after infection; these were positive for a few days in all instances and then became negative. After varying periods of time with negative blood cultures the animals were sacrificed, and at autopsy the heart's blood was cultured, as well as whole pieces of the heart, kidney, and liver tissues. The results are shown in Table I. In five of the animals, or 25 per cent, streptococci were recovered from one or more of the organs at a time when the blood cultures had been completely negative for four, five, or seven days. Histological study of the organs showed no lesions to suggest streptococcal infection or tissue damage. This experiment proves nothing about rheumatic fever, but it does show that the hemolytic streptococcus can take up residence in internal organs without the necessity of a coexistent septicemia, and without causing a local tissue reaction to the microorganism.

The most urgent need in research on rheumatic fever is for an experimental model with which the disease can be studied in the laboratory. If it were possible to produce the disease in animals, one could learn much concerning the mechanisms involved in the development of the tissue lesions, and, more important, new therapeutic agents could be tested in an experimental manner which is out of the question in human patients. Numerous attempts have been made by many workers, with varying degrees of success, but to date no one has actually duplicated the cardinal pathological feature of rheumatic fever, which is the Aschoff body. One approach which has been intensively studied is based on the assumption that rheumatic fever is a manifestation of hypersensitivity, because of the latent period between the streptococcal infection and the disease. Using this approach, Rich and colleagues[11] have shown that serum sickness in the rabbit, following intravenous injections of very large quantities of foreign protein, is accompanied by vascular lesions in the heart and other organs which resemble the human lesion of periarteritis nodosa. But, despite the pathological relationship between periarteritis nodosa and rheumatic fever, this animal disease is not rheumatic fever. Other workers have attempted to reproduce the disease by producing streptococcal infections in animals. The most nearly successful results were obtained by Murphy and Swift,[9] who gave repeated injections of group A hemolytic streptococci to rabbits over periods of many months. In a few of their animals myocardial lesions with some of the attributes of rheumatic carditis were encountered. In our laboratory, numerous attempts have been made to produce carditis in rabbits by streptococcal infection. With streptococci alone, regardless of the extent or number of infections, our results have been negative. Recently, on the assumption that some additional stimulus superimposed on streptococcal infection may be required to produce the disease, a series of experiments involving the generalized Shwartzman reaction[16,18] have been undertaken. The latter is a curious, unexplained phenomenon which occurs when rabbits are given two successive intravenous injections of bacterial endotoxins derived from Gram-negative microorganisms, and it consists of hemorrhagic necrotizing lesions in many organs, particularly the kidney in which bilateral cortical necrosis characteristically occurs. The mechanism of the reaction is not known, but it appears to involve damage to circulating polymorphonuclear leukocytes and occlusion of small blood vessels by eosinophilic material which resembles fibrinoid. We have found that a systemic streptococcal infection is a highly effective method for preparing animals for the generalized Shwartzman reaction. When rabbits were given an intravenous injection of living group A hemolytic streptococci, and this was followed two or more days later by an intravenous injection of meningococcal toxin, an overwhelming reaction of hemorrhage and necrosis occurred in many internal organs, most conspicuously the heart and the kidneys. The renal lesion is that of bilateral cortical necrosis, and its underlying basis is believed to be the occlusion of the glomerular capillaries by homogeneous, eosinophilic material which, histologically, is similar to fibrinoid. Rabbits which remained alive for several days after this two-stage experiment showed extensive myocardial inflammatory lesions, with necrosis of myofibers, infiltration by mononuclear cells in the vicinity of blood vessels, and fragmentation of the ground substance. Some of the cardiac lesions have closely resembled human Aschoff bodies.

The basic lesion in rheumatic fever, as in disseminated lupus erythematosis, involves the blood vessels, and what we are seeking in our experimental model is a lesion which involves vessels with some degree of selectivity. The cardiac lesions just described involved a much greater destruction of myofibers than is commonly seen in rheumatic carditis. However, when the effects of various dosages of streptococci and toxin were studied in rabbits, it was found that a rather narrow dosage range existed within which a new type of cardiac lesion occurred in a high proportion of animals. The results will be described in detail in a separate report.[19] In brief, necrotizing lesions occurred in the walls of the medium-sized vessels, with swelling of the wall, distortion and rounding of the cells in the media, and remarkable depositions of pink fibrinoid material within the wall. In addition, fragmentation of the ground substance occurred in the connective tissue surrounding the vessels, with infiltration by owl-eyed cells.

We feel that this may be a satisfactory model for the study of rheumatic fever and we propose to use it for this purpose. The vascular lesions have occurred in the majority of animals and have caused death within two or three days, so that the experiments can be easily adapted to the survey of potential therapeutic agents.

Which brings us to the third and final problem in this discussion, the treatment of rheumatic fever.

First, since they are the agents receiving the most conspicuous attention in both medical and lay publications, what is the present status of cortisone and ACTH in the treatment of rheumatic fever? A fairly large number of patients have now been treated with these hormones, in numerous medical centers throughout the country, and an elaborate co-operative study which involves several groups of workers in the United States, Canada, and England is now in progress. Although the final answer is not yet at hand there are some points about which there is already general agreement. First of all, there is no question but that cortisone and ACTH produce a dramatic beneficial effect on the painful manifestations of acute rheumatic fever. The joint symptoms, fever, and malaise disappear within a day or so after treatment is started in almost all instances. There is some question, however, as to whether this effect is significantly different from that which occurs with salicylate treatment. According to Houser and his co-workers,[6] who have compared the effects of aspirin, cortisone and ACTH in adequate numbers of young adults with acute rheumatic fever, aspirin is actually more effective against general symptoms than either cortisone or ACTH. The most important question concerns the effect on the cardiac manifestations of the disease, and it is the general feeling that several years of observation will be required before a definitive answer can be given. However, on the basis of reports that have been published by several groups of workers, it seems most probable that rheumatic disease of the heart is not cured by ACTH or cortisone, and indeed it is questionable whether these materials have any significant effect on the final outcome of rheumatic carditis, as far as valvular heart disease is concerned. To quote McEwen,[7] who has described the results obtained at Bellevue Hospital in New York, "it is probable that ACTH and cortisone do not affect the underlying causative mechanism of rheumatic fever, in spite of the fact that they so strikingly affect certain symptoms."

Until a final answer is available, it is suggested that the hormones be used only in selected cases of rheumatic fever in which the severe manifestations of the disease are not controllable by salicylates. They should not be used as routine therapy. On the wards of the Heart Hospital we have been using ACTH or cortisone only when we are entirely unable to control the disease by other measures, and it is my impression that we have not yet altered the outcome of carditis in any of our more severely ill patients who have received hormone therapy.

There are good reasons for restricting the use of cortisone and ACTH to carefully selected patients. It should be emphasized that these substances, despite the beneficial effects which they can produce, may under certain circumstances create important hazards. One of these circumstances has been shown to exist in infection. In experimental animals, treatment with cortisone or ACTH brings about a marked increase in susceptibility to infection by a variety of bacteria and viruses.[17] This effect is illustrated by experiments conducted in our laboratory two years ago in which the effect of cortisone on infection by group A hemolytic streptococci was studied in rabbits. It was found that a streptococcal infection, which is an extremely mild affair for normal rabbits, results in overwhelming septicemia and death in animals which have been treated for several days with cortisone.[8]

In addition to the enhanced susceptibility to infection by living microorganisms which is produced by cortisone, we have also shown that treated animals become extremely vulnerable to the lethal effects of certain bacterial endotoxins in doses which are innocuous in normal, untreated animals.[20] Whether these events have any counterpart in human disease is not known, but until more information becomes available it would seem prudent to limit the clinical use of the hormones to those diseases in which important beneficial effects are *known* to occur, and in which infection either does not exist or is kept under control by concurrent antibiotic therapy.

The most important item in the treatment of rheumatic fever is concerned with the streptococcus. In most children the first episode of rheumatic fever is a relatively benign affair and the incidence of disabling heart disease after a single attack is very low. The patients who get into serious trouble are those in whom repeated attacks occur, year after year; these are the individuals who become cardiac cripples. Repeated attacks of rheumatic fever are always the result of repeated streptococcal infections, and if infection can be prevented rheumatic fever can be prevented. This fact is agreed upon by virtually all students of this disease. Thus we have at hand a therapeutic possibility which is of far greater importance than the salicylates, cortisone, ACTH or anything else that may be applied once rheumatic fever has begun. The disease can be prevented, provided that certain stern conditions are accepted. Any child who has had one attack of rheumatic fever must be regarded as a rheumatic child. If he develops a new streptococcal infection, his chances of developing another attack of rheumatic fever have been shown to be at least 25 per cent, as compared with an incidence of about 3 per cent in normal children. And with each new rheumatic attack, his susceptibility to additional attacks becomes increasingly enhanced. In order to prevent streptococcal infections in such children, it is necessary to administer prophylactic sulfonamide or penicillin, daily, the year round, throughout childhood and into adolescence. This means, for some children, five or even ten years of daily prophylactic medication. The financial and social difficulties involved in such a regimen are obvious. Nevertheless, at the present time, this is the only effective method for dealing with the problem of rheumatic fever. In the rheumatic fever clinic at the Heart Hospital, we are using oral penicillin for prophylaxis, and all of our pediatric patients who have had one episode of rheumatic fever are now receiving two to three hundred thousand units of penicillin by mouth every day.

If this kind of prophylactic treatment is impossible, and under some circumstances it may be, there is one other thing that we can do to prevent rheumatic fever. Denny and his co-workers,[4] at the Fort Warren Air Force Laboratory in Wyoming, have shown that it is possible to prevent rheumatic fever by the early and energetic treatment of streptococcal respiratory infections with penicillin. This method is not entirely satisfactory because of the difficulties which are sometimes involved in making the diagnosis of streptococcal infection early enough in the course of pharyngitis or tonsillitis. Nevertheless, if the rheumatic child is closely observed for early manifestations of respiratory infection, and large doses of penicillin are begun as soon as the diagnosis is suspected, it is possible that many attacks of rheumatic fever can be prevented.

This in our opinion is the most significant recent therapeutic advance that has been made in the rheumatic fever problem, and it is of the utmost practical importance. There may be little that we can do about rheumatic carditis once it has occurred, but we can prevent streptococcal infection and therefore we can prevent rheumatic heart disease.

Bibliography

1. Anderson, H. C.; Kunkel, H. G., and McCarty, M.: Quantitative antistreptokinase studies in patients infected with Group A hemolytic streptococci; comparison with serum antistreptolysin and gamma globulin levels with special reference to occurrence of rheumatic fever. J. Clin. Invest., 27:425, 1948.
2. Coburn, A. F.: The factor of infection in the rheumatic state. Baltimore: Williams and Wilkins Co., 1931.
3. Collis, W. R. F.: Bacteriology of rheumatic fever. Lancet, 237:817, 1939.
4. Denny, F. W., Jr.; Wannamaker, L. W.; Brink, W. R.; Rammelkamp, C. H., Jr., and Custer, E. A.: Prevention of rheumatic fever; treatment of preceding streptococcic infection. J.A.M.A., 143:151, 1950.
5. Green, C. A.: Researches into aetiology of acute rheumatism; rheumatic carditis: post-mortem investigation of nine consecutive cases. Ann. Rheumatic Dis., 1:86, 1939.
6. Houser, H. B.: In Rheumatic Fever, A Symposium, edited by L. Thomas, p. 298. Minneapolis: University of Minnesota Press, 1952.
7. McEwen, C.: The treatment of rheumatic fever with cortisone and ACTH. Bull. St. Francis Sanatorium, 9:1, 1952.
8. Mogabgab, W. J., and Thomas, L.: The effects of cortisone on bacterial infection. Group A hemolytic streptococcal infection in rabbits. J. Lab. & Clin. Med., 39:271 (Feb.) 1952.
9. Murphy, G. E., and Swift, H. F.: Induction of cardiac lesions, closely resembling those of rheumatic fever, in rabbits following repeated skin infections with Group A streptococci. J. Exp. Med., 89:687, 1949.
10. Paul, J. R.: The Epidemiology of Rheumatic Fever and Some of Its Public Health Aspects. New York: Metropolitan Life Insurance Co., 1943.
11. Rich, A. R., and Gregory, J. E.: Experimental evidence that lesions with basic characteristics of rheumatic carditis can result from anaphylactic hypersensitivity. Bull. Johns Hopkins Hosp., 73:239, 1943.
12. Rothbard, S.: Bacteriostatic effect of human sera on Group A streptococci; type specific antibodies in sera of patients convalescing from Group A streptococcal pharyngitis. J. Exp. Med., 82:93, 1945.
13. Schlesinger, B.: The relationship of throat infection to acute rheumatism in childhood. Arch. Dis. Childhood, 5:411, 1930.
14. Swift, H. F.: Rheumatic fever, In Cecil, R. L.: A Textbook of Medicine, p. 168. Philadelphia: W. B. Saunders Co., 1947.
15. Tillett, W. S., and Francis, T.: Serological reactions in pneumonia with non-protein somatic fraction of pneumococcus. J. Exp. Med., 52:561, 903.
16. Thomas, L.: The production of cardiac lesions resembling acute rheumatic carditis by streptococcal infection and a modification of the Shwartzman reaction. J. Lab. & Clin. Med., 38:955, 1951.
17. Thomas, L.: Infectious diseases (The Effects of Cortisone and Adrenocorticotropic Hormone on Infection). Ann. Rev. Med., 3:1, 1952.
18. Thomas, L.; Denny, F. W., and Floyd, J.: Carditis in the generalized Shwartzman reaction produced with Group A streptococci. Federation Proc., 11:484, 1952.
19. Thomas, L.; Denny, F. W., and Floyd, J.: To be published.
20. Thomas, L., and Good, R. A.: The effects of cortisone on the Shwartzman reaction. The production of lesions resembling the dermal and generalized Shwartzman reaction by a single injection of bacterial toxin in cortisone-treated rabbits. J. Exp. Med., 95: 409-428, 1952.
21. Unpublished observations.
22. Wannamaker, L. W.; Rammelkamp, C. H. Jr.; Denny, F. W.; Brink, W. R.; Houser, H. B.; Hahn, E. O., and Dingle, H. H.: Prophylaxis of acute rheumatic fever by treatment of the preceding streptococcal infection with various amounts of depo penicillin. Am. J. Med., 10:673, 1951.

THE CHANGING PROBLEM OF TUBERCULOSIS IN A CITY CLINIC

Review of a Twenty-five-Year Program

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IN THIS PAPER I shall try to give in a summarizing fashion the tuberculosis experience of an outpatient clinic in a poor section of a large Atlantic seaboard city over the last twenty-five years. Such an account may possibly be of interest for comparison of its data with figures for the rest of the country, and particularly, I would hope, with the experience of your own community. The picture that I present may help to dispel the notion growing in some parts of the country that tuberculosis is no longer a grave public health problem.

Tuberculosis in Philadelphia

The city is Philadelphia and the outpatient clinic is that of the Henry Phipps Institute of the University of Pennsylvania. Philadelphia is not unique with respect to tuberculosis among the large cities of this country. It has the same type of dropping death rate as the rest of the nation, but the decline has taken place along a slope much higher in altitude than is the case in your own section of the United States. Our death rate from tuberculosis at present is about eight times yours. Approximately 700 deaths from tuberculosis occur annually in this city, which has a population of a little over two million, made up of 82 per cent white and 18 per cent non-white residents. Six thousand cases of active tuberculosis and 13,000 cases of supposedly inactive tuberculosis are listed in the city records. The validity of such high figures in relation to known deaths from the disease may be open to question; I can only say that various case finding programs have long been in operation and the figures are from the city's official records.

The City of Philadelphia is divided into districts for the public health care of tuberculosis. Each of these has a tuberculosis clinic with a part time medical and full-time public health nursing staff, whose primary objectives are the discovery of new cases of tuberculosis, referral of discovered cases to proper institutions for their treatment, and follow-up supervision of patients and their contacts in their homes.

Outpatient Clinic of Henry Phipps Institute

The Henry Phipps Institute, although a voluntary organization, operates one of these district clinics. In passing, special mention might be made of this rather unusual arrangement. At relatively small cost to the city this private organization has assumed part of the city's load, fulfilling exactly the same responsibilities as the other city tuberculosis clinics, but carrying out its task with funds secured for the most part from other than official sources. This seeming generosity is motivated by the sincere desire to promote progress in tuberculosis control and learn facts on the epidemiology and prevention of tuberculosis through academic methods not practical in the routine operation of an ordinary municipal clinic.

The outpatient clinic of the Institute is supported by (1) a designated share of the Institute's endowment, (2) a substantial grant from the Community Chest of Philadelphia, (3) the full co-operation of the Philadelphia Tuberculosis and Health Association and (4) a subvention in terms of personnel from the city istelf, derived in turn from state aid funds from the federal Public Health Service. It has a staff of ten full time or part time physicians and twenty full time public health nurses.

The outpatient clinic of the Institute is in essence a case finding organization, with well organized machinery for family supervision. Some 3,200 families are on its rolls for active supervision. Approximately 5,200 home visits a year are made by its public health nurses, and about 15,000 visits at the Institute are made annually by the Institute's patients.

Within the large group of persons visiting the Institute each year for observation or care a not inconsiderable number of new cases of tuberculosis are discovered. Diagnosis is effected by the usual methods of symptomatic and contact history, physical and x-ray examination and lab-

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oratory studies. All active cases found are reported promptly to the City Health Department. Cases of undetermined activity are followed up at regular intervals in the effort to classify them as active or inactive. Active cases are referred in so far as possible, according to their type, to the city's general hospital or the tuberculosis hospitals of the State of Pennsylvania.

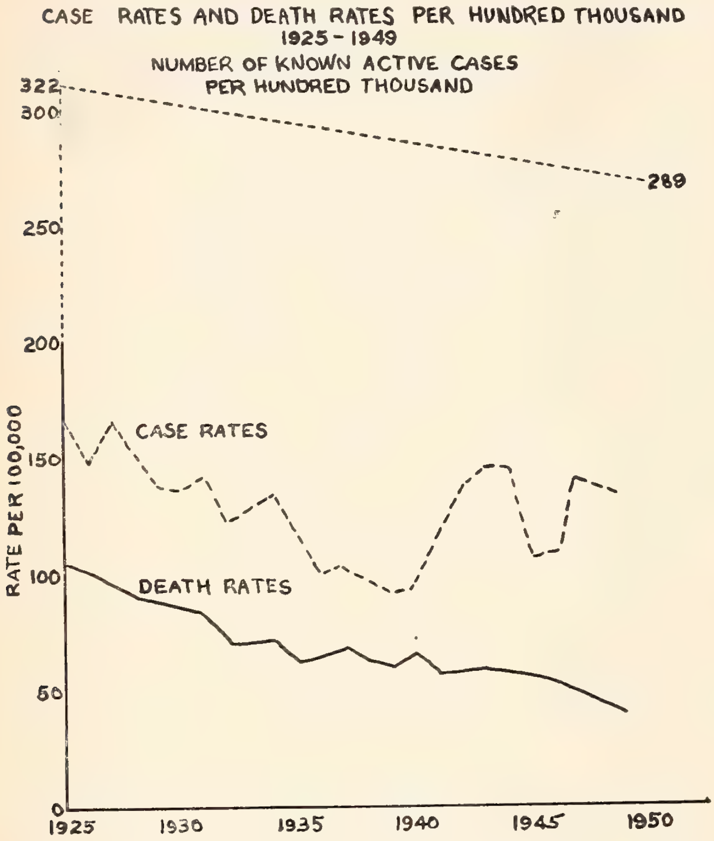

Fig. 1. Tuberculosis case and death rates in Philadelphia.

Unfortunately under present circumstances referral of cases has become theoretical rather than actual. For many months the city and state hospitals for tuberculosis have been filled to capacity and the city is left with a large and growing waiting list of patients gravely in need of hospital care. The shortage of beds is particularly acute in the case of males. About 450 persons, seven-eights of whom are men, are waiting for a hospital or sanatorium bed in Philadelphia at the present time.

A curious anomaly exists in the fact that it is still possible to force patients into hospitals for the care of their disease. Like a number of other cities of this country Philadelphia has legislation for the compulsory isolation of recalcitrant tuberculosis patients who are proven to be a menace, from the point of view of contagion, to the community.

TABLE I. INCIDENCE OF TUBERCULIN REACTION IN PHILADELPHIA SCHOOL CHILDREN

	Per cent Positive (First Dose)	
Year	At 6 years	At 16 years
1928	25.0	52.7
1948	4.2	16.4

Figures from Board of Education.

Philadelphia Tuberculosis Mortality and Infection Rates

The death rate from tuberculosis has dropped steadily over a period of many years. Figure 1 illustrates the drop in mortality rate for the second quarter of the twentieth century, which is the period here reviewed. The figure also shows the annual new case rate which, although it has fluctuated notably in recent years, probably as a result of varying opportunity and intensity of effort in case finding, has on the whole declined. It will be noted that the known total active case rate decreased only slightly from 322 to 289 per hundred thousand population.

For comparison it is of interest to note a dropping infection rate as shown by the results of the tuberculin test in school children in two representative years twenty years apart (Table I).

Twenty-five Years' Experience in Epidemiology of Tuberculosis

This brings me to a more detailed consideration of the experience of the chest clinic of the Henry Phipps Institute. The district controlled from the point of view of tuberculosis by the Institute is comprised of a segment of southeast Philadelphia and a smaller area in the southern part of north Philadelphia, with a total population of approximately 200,000 persons. The district in the Institute's charge has not been exactly the same over the total period of twenty-five years which we are considering, so that the figures I shall furnish do not have the full statistical value we would wish for comparative purposes. They are fully representative simply of the experience of the Institute itself. They are of value, even for comparative purposes, however, as an indication of the operation of a typical, well organized case finding agency, devoted to its task over a period of a quarter of a century, making full use of all the methods, techniques and new equipment that have become available within that length of time.

TABLE II.
NEW PATIENTS WITH ACTIVE TUBERCULOSIS
Henry Phipps Institute 1926-50

Period	White M.	White F.	Negro M.	Negro F.	Total
1926-30	219	127	86	106	538
1931-35	119	112	125	104	460
1936-40	98	66	221	202	587
1941-45	147	65	242	187	641
1946-50	115	57	241	235	648

TABLE III.
NEW PATIENTS WITH ACTIVE TUBERCULOSIS
Henry Phipps Institute 1935-50

Year	White	Negro
1935	91	78
1940	71	110
1945	55	101
1950	41	138

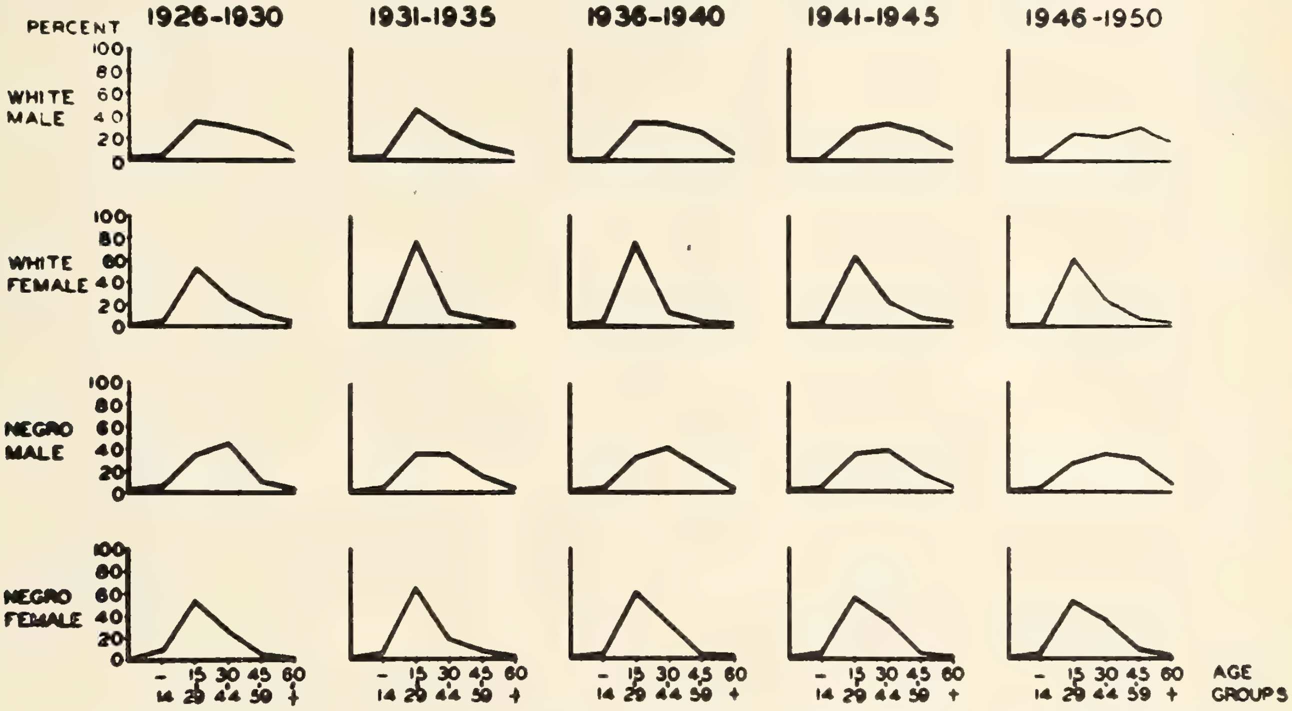

Fig. 2. Percentage of active tuberculosis at diagnosis by sex and race in five-year periods by age groups.

Since the size and character of the district have not changed profoundly they have some statistical value as well.

At this point I shall say that the figures I give are rough ones within the limitations to which I have referred. More nearly exact calculations are being made at the present time of certain large blocks of census tracts within the total district, which, it is hoped, will yield data of full comparative statistical significance.

Table II summarizes the discovery of new cases at the Institute by case and sex for the period 1926-50. It will be noted that a significant decline has taken place in the twenty-five year period in the number of new cases in whites, while a notable rise has occurred in the number of Negro cases, and that the total number of new cases discovered in each five-year period has generally increased. Table III is added to give an easy view of the trend in whites and Negroes by individual years from 1935 to 1950. The table speaks for itself. It is an illuminating and I believe characteristic, illustration of the changing complexion of an outpatient tuberculosis clinic in an underprivileged area of a typical large eastern city.

The figures on which the tables are based represent a combination of effort by the clinical and public health nursing staffs of the Institute. The great majority of the all-important final diagnoses for the total period were made by Dr. H. W. Hetherington, Chief of the Chest Clinic.

For our immediate purposes we should note that the tuberculosis load in a tuberculosis clinic of this city, whatever may be the reason for it, is as large today as it was twenty-five years ago. Many questions come to mind in seeking an explanation of this fact at a time when the tuberculosis mortality rate is unmistakably dropping. Is there an actual increase in the number of cases, or is the apparent increase simply a reflection of better case finding? Are we dealing simply with an accumulation of cases, dependent on better case finding and longer life in the cases discovered? Is the high rate to be explained chiefly on the basis of an increase in the percentage of non-whites in the population?

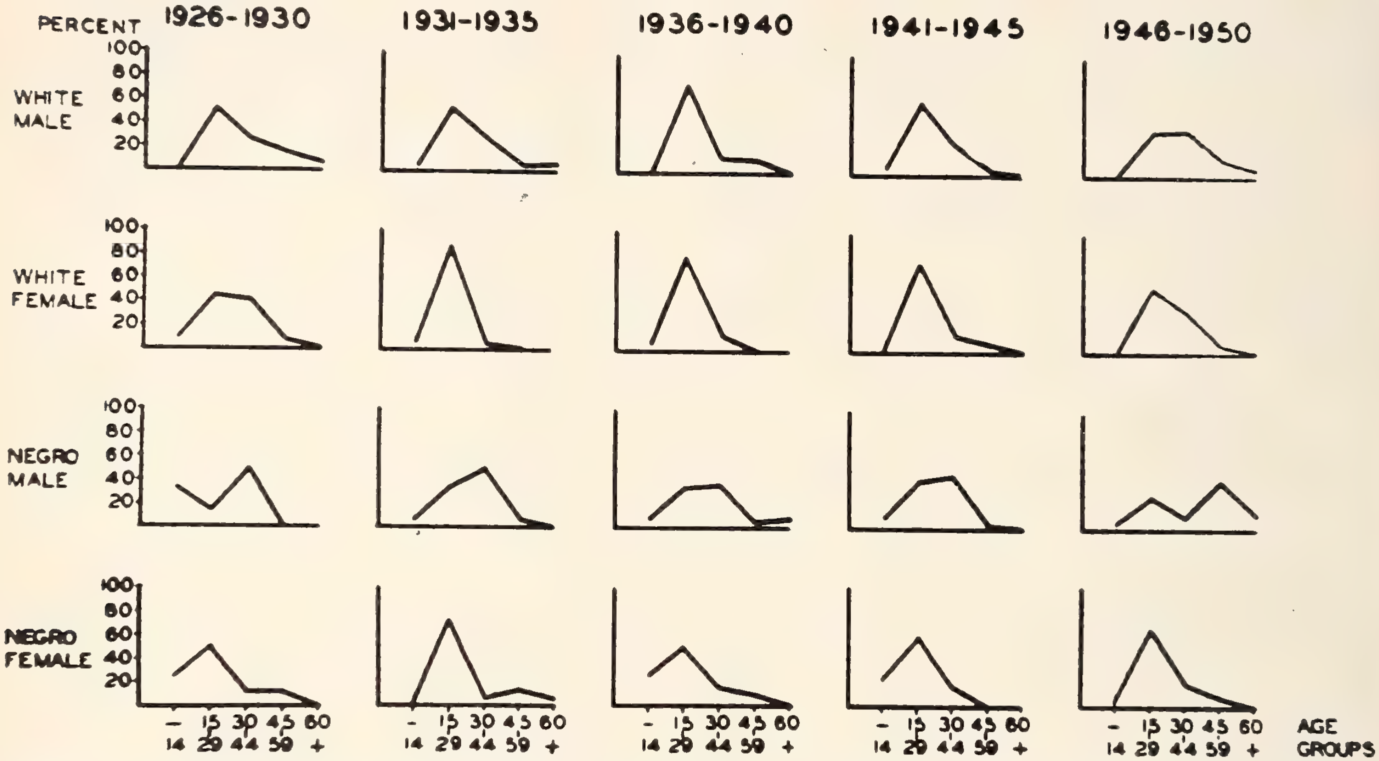

Fig. 3. Percentage of active tuberculosis in minimal stage at diagnosis by sex and race in five-year periods by age groups.

In the attempt to find an answer to these questions it will be of value to make certain breakdowns of the gross data, particularly on the basis of sex, color, age and stage of advancement of the disease at the time of discovery.

Figure 2 summarizes the percentages of active tuberculosis by sex, race and age, in five-year periods for the quarter century under consideration. It will be seen that percentage-wise no significant change has occurred in the distribution of cases by age at discovery in the female sex, although, as I have already indicated (Table III) the actual number of cases in white females decreased greatly.

In males, on the other hand, a significant change has occurred. In both white and Negro males the curve of age at discovery has tended to flatten with removal of a peak in early life and establishment of a plateau in later life. This finding is quite in accord with the well known phenomenon of increase in the average age at death from tuberculosis in the male population.

Figures 3 and 4 illustrate the same problem from the point of view of stage of disease at the time of discovery. No startling differences are evident when the total cases are separated into minimal and advanced (i.e., moderately and far advanced combined). Again the curves are essentially of the same character throughout for females, and again the curves for males have changed from a characteristic early peak to a late plateau. The curves for advanced cases are essentially the same as for all cases combined, for the simple reason that the majority of cases discovered have always been in the advanced stage.

The fact that the percentage of cases discovered in the minimal stage has not increased significantly in the last twenty-five years is, needless to say, a cause for profound disappointment. It might have been expected that much better results could have been secured with twenty-five years of improvement in procedures for case finding. The objective facts are summarized for convenience of examination and economy of space in Figure 5, in which a comparison is made of the first with the second half of the twenty-five-year period. In brief the figure shows that (1) the total number of cases has gone down in both male and female whites and risen in both male and female Negroes and (2) that the percentage of cases discovered in the minimal stage did not vary profoundly in the four sex-color groups in the two halves of the total period. Perhaps there is some significance in the fact that

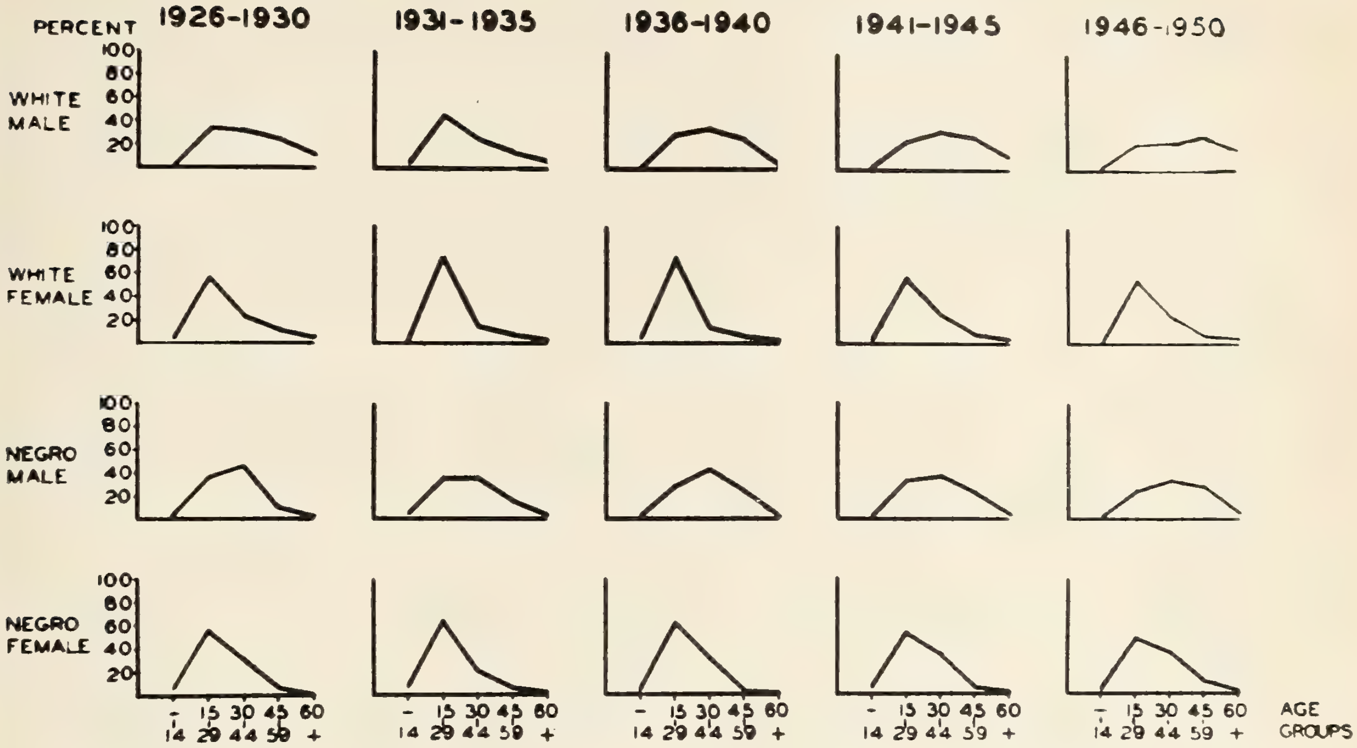

Fig. 4. Percentage of active tuberculosis in moderately and far advanced stages at diagnosis by sex and race in five-year periods by age groups.

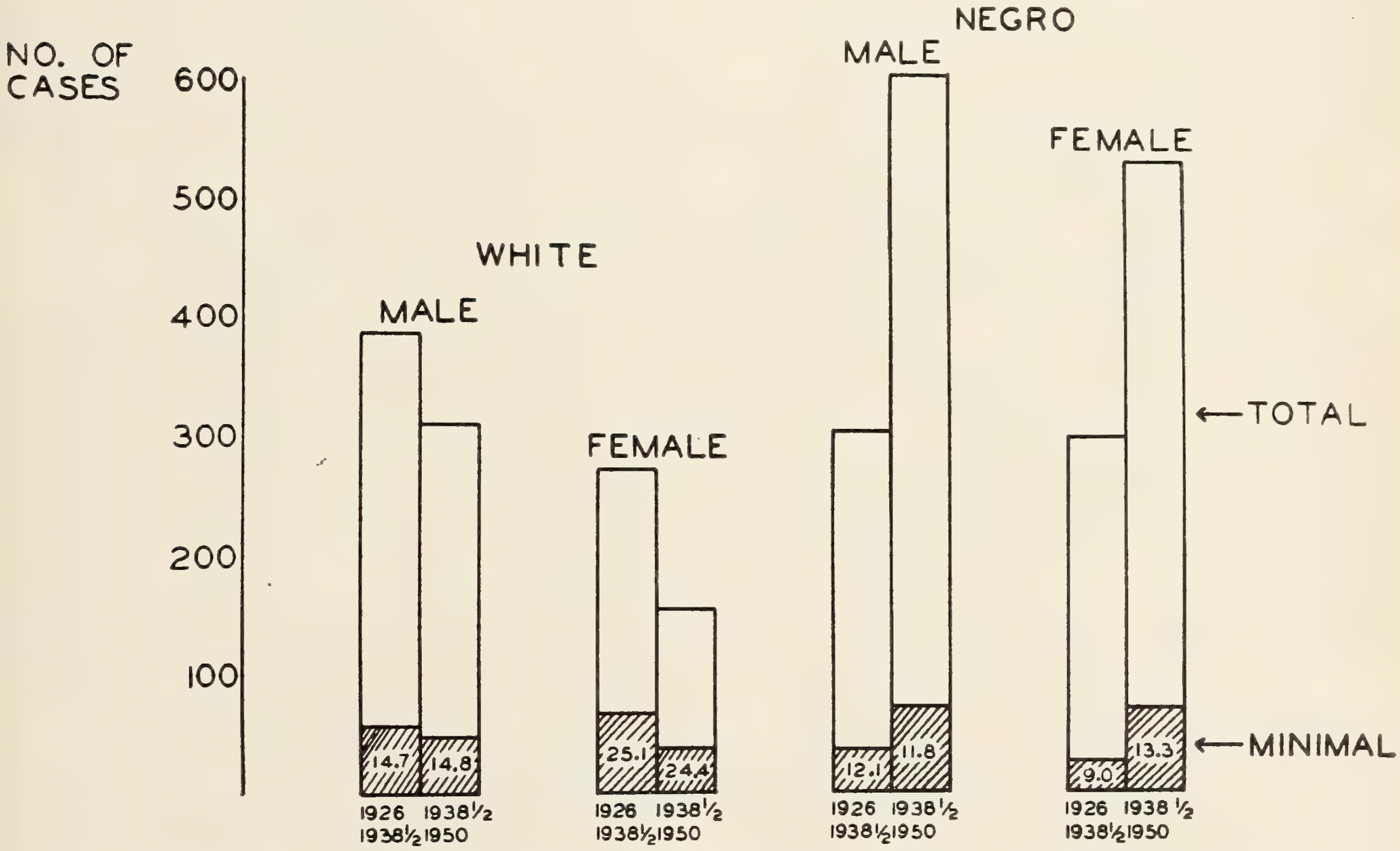

Fig. 5. Percentage of active tuberculosis by stages at diagnosis by sex and race in twelve-and-one-half-year periods.

a relatively high, although still actually disappointing low, percentage of minimal cases was found in white females.

Why more cases are not discovered in the minimal stage is an unsolved problem, in the face of which we can only bow our heads in shame. It was thought that some light might be thrown on the question by a study of the median age at diagnosis. Facts of some significance were indeed discovered. Figure 6 shows that the median age at diagnosis has risen slowly through the years in males, but not significantly in females. This fact is perhaps merely another facet of the picture exposed in Figures 4-6.

It was hoped for a time that a study of origins of the population with respect to residence in the area would be illuminating. It might be supposed that the population in which the disease developed had come to the district relatively recently and brought their disease with them. The facts do not seem to bear this supposition out. Figures are available at present only for residence in the state, not for residence in the district, but these figures, which are accurate as far as they go, do not suggest that recent immigration of Negroes from the South is the explanation of the problem. Figure 7 shows that only 5 to 10 per cent of the white persons and 12 to 22 per cent of the Negroes who were found to have tuberculosis had lived in the State of Pennsylvania less than five years.

As a side point, the fluctuation in percentage of patients with respect to length of residence in the state is of considerable interest. Those skilled in the study of migrations on the basis of economic conditions will probably be able to demonstrate correlations between the figures and opportunities for employment, in the two race groups, with special reference to depression and war time conditions and the general phenomena of industrial activity.

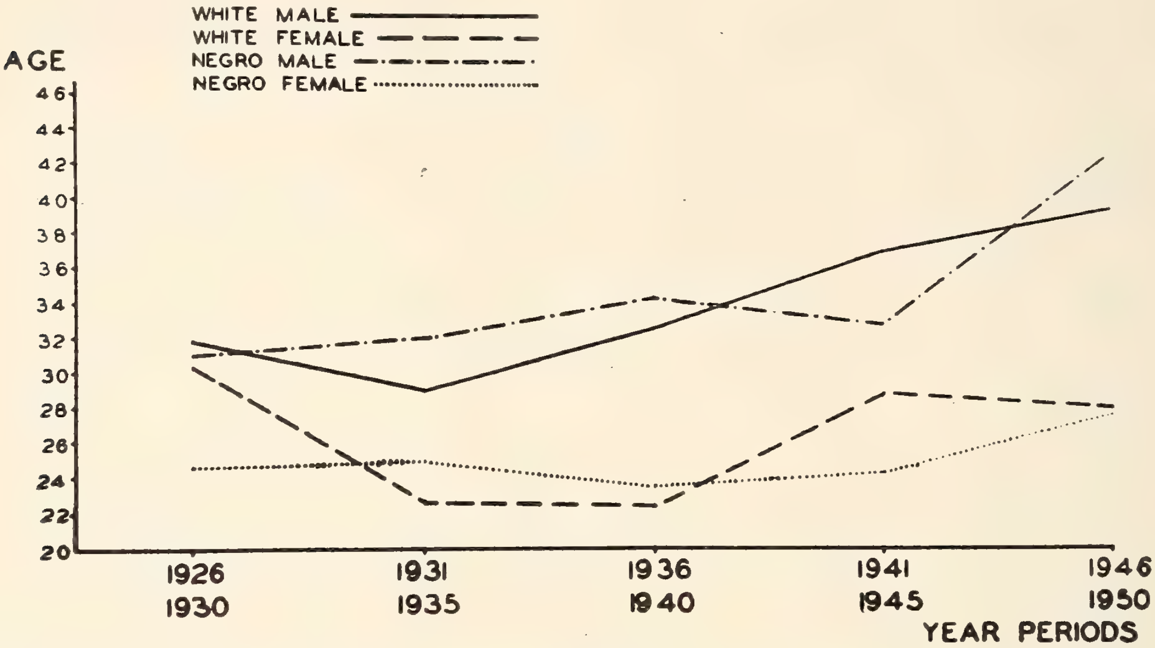

Fig. 6. Median age at diagnosis of active tuberculosis by sex and race in five-year periods.

Home Treatment—Substitute Measure in Bed Shortage

Obviously the data brought before you for consideration are disturbing in their general import. The system is not working well if we have a right to expect a steady decline in the total number of cases in the neighborhood and an increase in the percentage of cases discovered in the minimal, curable stage. We deplore the facts, while not being able to explain them satisfactorily. In the face of the serious bed shortage certain practical measures have to be taken to prevent a bad situation from becoming worse. Every method that can be brought to bear through public health nursing education in families of low economic state in tenement homes in the effort to prevent spread of infection, is made. Under the conditions the results are far from satisfactory. The fact remains that some hundreds of patients with positive sputum, who should be in tuberculosis hospitals, are at home not getting better themselves and exposing others at the same time.

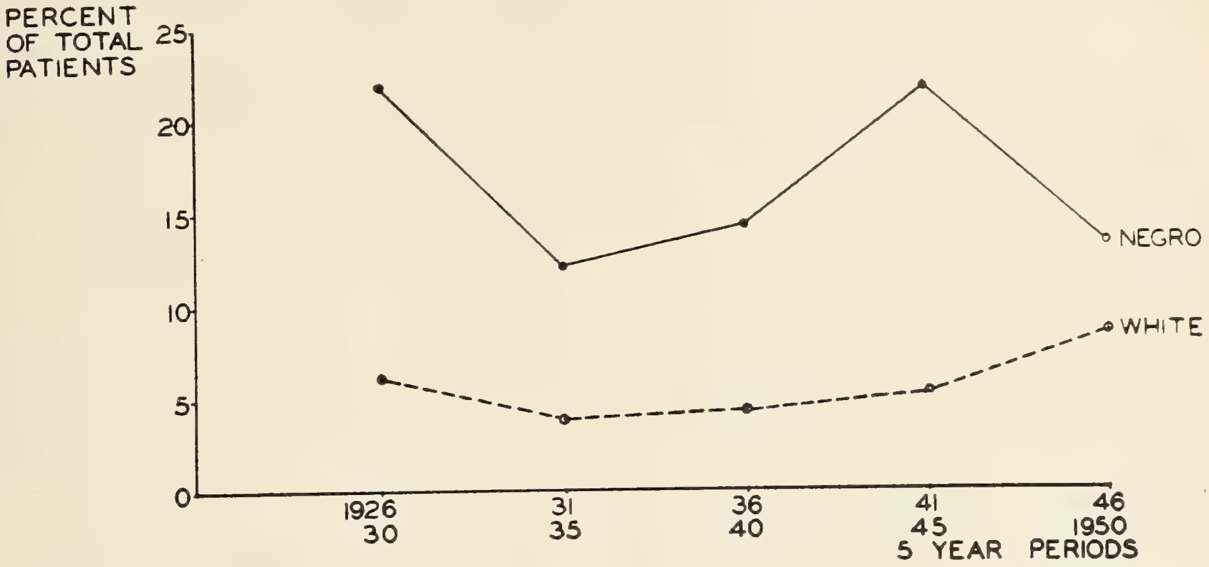

Fig. 7. Percentage of total Henry Phipps Institute white and Negro patients with active tuberculosis residing in Pennsylvania five years or less when diagnosed.

You will not be surprised to learn that under the circumstances we have turned to chemotherapy as a measure of possible value in the control of the disease in the homes. We have done this in spite of a firm conviction that the drug treatment of tuberculosis is carried out most effectively in hospitals, and least effectively on a home basis under the conditions of training in the type of population for which we are responsible.

In practice, cases are brought up for consideration at medical staff conferences, and a regimen of 1 gm. of streptomycin twice a week and 12 gms. of para-aminosalicylic acid daily is prescribed for cases considered suitable for chemotherapy. Patients who are judged to be semi-ambulant come to the Institute for their streptomycin injections. Those who are too sick receive the streptomycin treatment from our public health nurses in their homes. Each patient is responsible for his own administration of para-aminosalicylic acid, which is furnished by the Institute in adequate amount for a period ahead. Both drugs, I may say in passing, are provided to the Institute through the interest and generosity of Merck and Company, who are anxious to determine if they are effective under the existing conditions.

I am sorry to say that in general the results have been disappointing. In about three quarters of the cases the type of improvement with which we are all familiar in hospital and sanatorium practice has not occurred. In the majority of cases the patients' tubercle bacilli have become resistant to streptomycin, and progression of the disease after temporary improvement has been common.

We believe that failure to take the prescribed para-aminosalicylic acid, which occurs even under sharp scrutiny in hospitals, is partly responsible for the poor results. But probably no single explanation applies. Failure to observe prescribed rest hours is perhaps equally important. In the generally improper, unhygienic conditions prevailing, streptomycin and para-aminosalicylic acid have proved relatively feeble weapons.

This brings me to another question that I was asked to discuss briefly. That is the possibilities for a more successful chemotherapy of tuberculosis with the newly reported drugs of the isonicotinic acid series. The manner of announcement of these drugs, which proved beyond the control of those most concerned in their study, was unfortunate, particularly as it raised exaggerated hopes of the potency of the drugs in the minds of many very sick patients. After the first hysterical outburst, to which even the most conservative elements of the public press contributed, scientific investigators in increasing numbers developed a broad program of investigation which has had all the benefits of the several years of study of streptomycin and its effects, proper dose regimens and general usage.

So much has been said about these drugs that there is no point in my digressing further here as to their origin in the course of current investigations or their chemical composition. It is worth while to point out that in laboratory and animal studies they have proved to have a bacteriostatic power for the tubercle bacillus comparable to and possibly even superior, to that of streptomycin. In man they have been shown to have remarkable efficacy in relieving symptoms in pulmonary tuberculosis and arresting the one time inexorable advance of miliary tuberculosis and tuberculous meningitis. It is too early yet to make definite statements on their ability to arrest the various forms of pulmonary tuberculosis.

It is almost universally agreed that they effect no miracles, that they will not do away with the need for tuberculosis hospitals, or, in the foreseeable future at least, materially lessen the period of hospital treatment required for the kind of pulmonary tuberculosis that the bulk of our patients have. They represent undeniably a great step forward, and their value may increase as we know more of effective dosages, and useful combinations with other drugs. Possibly they will prove of value in the problems I have just described. Present indications, however, indicate that they are only new tools, like streptomycin and practical surgery, and that the fundamental principles of hospital care and improvement in environmental conditions will continue to apply in solving the tuberculosis problems in benighted areas of big cities.

Summary

1. Philadelphia, like other large cities of this country, has experienced a dropping tuberculosis mortality rate, but has a persistently high prevalence of known cases of the disease.

2. Large outpatient tuberculosis clinics in such cities, as exemplified in the Chest Clinic of the Henry Phipps Institute of the University of Pennsylvania, have as many patients with active tuberculosis on their rolls today as twenty-five years ago.

3. Certain qualitative changes have taken place, however, in the group character of the patients on the rolls. At the Henry Phipps Institute clinic, which is believed typical of well organized city chest clinics in the big cities of the Atlantic seaboard, the number of white patients has decreased sharply, while the number of Negro patients has increased correspondingly. White males outnumber white females two to one, while the number of Negro patients in the two sexes is equal.

4. In spite of a growing intensity in case finding measures the majority of cases discovered are in an advanced stage. About 15 per cent of cases are discovered in the minimal stage in white males, 25 per cent in white females, and 10-15 per cent in both male and female Negroes.

5. The median age at discovery has gone up in males, both white and non-white, from thirty-two to forty years during the second twenty-five-year-period of the twentieth century, but the median age at discovery in females, in both races, has remained stable during this period at about twenty-six years. It is remarkable that there is a sex, but not a race difference in this respect.

6. The current large accumulation of cases in the region comprised in this investigation is not due to immigration or other known variable factors. Rather, it seems due to a persistence of those environmental conditions which throughout the years have favored the development of tuberculosis in underprivileged areas. A prevailing shortage of beds for the care of tuberculosis is an important factor in the continuation of tuberculosis as a public health problem. The use of chemotherapy on an outpatient basis has not proved a satisfactory substitute for the now generally approved principles of hospital care for tuberculous patients.

7th and Lombard Streets

Tuberculosis continues to exert a greater influence upon the health and welfare of mankind than does perhaps any other infectious disease. It is a disease which frequently occurs during the early adult years of life and significantly during the economically productive years. Tuberculosis affects not only the patient as an individual but also influences the patient's entire family. The future activities and the social progress of the patient and his family are frequently altered, sometimes for better and sometimes for worse. As a truly clinical disease, tuberculosis continues to be one of the most frequently missed diagnoses.—James M. Blake, M.D., *New York State Journal of Medicine,* Feb. 1, 1952.

THE TREATMENT OF THROMBOPHLEBITIS

FREDERICK M. OWENS, JR., M.D.
Saint Paul, Minnesota

> The clotting of the blood is an essential physiological process without which man cannot long survive. In its absence the slightest injury resulting in hemorrhage permits bleeding to continue until the individual is exsanguinated. It is, therefore, a paradox that more human beings over the age of fifty die as a result of intravascular clot formation than from any other single pathological mechanism."

UPON this note Marple and Wright[5] have opened the introduction to their new book on thromboembolic conditions. With the same note we may enter into today's discussion of the treatment of thrombophlebitis.

The present day concepts of blood coagulation differ little from those held for many years but repetition of these is worthwhile. Four general factors seem to be paramount. The first is altered coagulability of the blood. This mechanism is not well understood but undoubtedly has to do with chemical changes in the blood affecting the formation of thrombin and fibrin. The second factor is increased agglutinability or adhesiveness of platelets. Studies done in my laboratory using the technique of Wright[9] reveals a definite increased agglutinability of platelets in thrombotic disease. Others have confirmed these findings. The third factor is change in the rate of blood flow. Slowing of blood flow allows the platelets and white cells to accumulate at the periphery of the blood stream where they occupy a position ideal for immediate agglutination should the other factors combine to create a favorable situation. The fourth factor consists of changes in the character and integrity of the vessel wall. Such changes can be found in the rough intima of the atherosclerotic artery or the torn intima of an injured vein. No one factor plays a predominant role, but the interaction of these four factors can be pointed to as the basis of intravascular clotting.

Thus in thrombophlebitis the early pathologic changes consist of obstruction of a vein by a thrombus with accretion of thrombus to fill other parts of the vein. At any time during this process of clot development a fragment may be dislodged and pass to the lungs causing serious sequelae.

Within a few hours of the onset of clot formation there begins a process of organization by which the clot becomes fixed to the vein wall and fibroblastic reconversion takes place. Ultimately there is recanalization of the vein as organization of the thrombus becomes complete. However these new channels when formed in the legs are unsatisfactory channels for they are devoid of valves to prevent reflux of blood in the venous system.

Venograms demonstrate very well the poor venous channels which form after thrombosis has occurred. These inadequate veins are responsible for the changes of stasis which occur after thrombophlebitis has subsided.

The symptoms of acute thrombosis are often not apparent so that pulmonary embolism may occur without obvious warning. In the greatest number of patients there will appear early signs when thrombosis has begun. Pain and tenderness in the popliteal space or the calf of the leg is present in almost all cases. Movement of the part intensifies the pain. Homan's sign (pain in the calf on dorsiflexion of the foot) is a late and unreliable sign. By watching carefully for any sign of pain or tenderness in the calf veins one can diagnose thrombophlebitis in its early stages and gain maximum benefit by early treatment.

Edema is present, but mild in the early stages, so that it is apparent only when careful observation and measurement is carried out. When edema is obvious the disease is well advanced.

Duskiness of the part distal to the clot appears early and is valuable when the color of the two limbs is compared. Dependency will increase the cyanosis on the involved side.

Three small branch veins run across the tibia just below the tuberosity of the tibia and empty into the lesser saphenous vein. Dilatation of these veins may be the first and only sign of thrombosis of the popliteal vein. However, this again is a late sign and the diagnosis should be made before it appears.

The temperature is usually slightly elevated, the pulse is increased, the blood pressure tends to

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Read before the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 27, 1952.

be low. Pulmonary embolism may be the first sign of thrombophlebitis and in the absence of any other source is a sign diagnostic of thrombosis.

The sequelae of thrombophlebitis fall into two groups, the early and the late effects. The most important early effect is pulmonary embolism. This occurs in about 1 per cent of all surgical cases (Jorpes,[4] Barker,[2] et al). Early mobilization reduced this figure to 0.6 per cent. Zilliacus[10] points out that the frequency of pulmonary embolism in cases of postoperative thrombosis is 50 to 60 per cent and that the mortality of postoperative thromboembolism is 20 per cent. Active treatment has markedly reduced this mortality. Smith and Mulligan[7] have reported that prior to the use of anticoagulant medication the incidence of thromboembolism in women patients undergoing surgery was 1:90 and the incidence of fatal emboli was 1:484. In 2,353 patients treated with dicoumarol the incidence of thromboembolism was 1:138 and the incidence of fatal embolism 1:2353.

The late sequelae consist of the changes of stasis, the so-called post-phlebitic syndrome. As stated above the effects of stasis arise from the fact that thrombosis and recanalization has destroyed the valves of the veins. Reversal of flow and stagnation of poorly oxygenated blood results in pigmentation of the skin, ulceration, dermatitis, edema, varicose veins and pain in the legs. Few conditions are as chronically disabling and as refactory to treatment as the post-phlebitic leg. For this reason alone it is of utmost importance to stop the extension of the thrombosis and treat it actively while it is still confined to small veins. Our policy is to begin treatment, and by this I mean complete treatment, at the mere suspicion of thrombophlebitis.

The treatment of thrombophlebitis has undergone many changes during the past decade without having reached a point where there is complete agreement among the various workers. For instance, Pratt[7] and his group advocate vein ligation as early treatment, Barker[2] and his group use dicoumarol, Jorpes[4] prefers heparin.

Rather than argue the merits of the various methods of treatment let us consider what is practical for most physicians. Omitting vein ligation from the discussion for the time being let us consider the anticoagulants. Heparin and dicoumarol are the only practical anticoagulants available at the present time. Heparin is expensive and must be given intravenously; dicoumarol is inexpensive and may be given by mouth. Heparin, as we use it, needs no laboratory control; dicoumarol can be used only when skilled laboratory help is available to do daily prothrombin determinations. In most instances where laboratory facilities are meager heparin has a great advantage over dicoumarol.

How is heparin used? Heparin is used intravenously. It may be used by the intermittent or the continuous technique, but the intermittent technique is safer and simpler.

The intermittent technique implies repeated administration at specific intervals such as every four hours or four times a day. In general we use the Swedish technique of giving the heparin at 8 a.m., 12 noon, 4 p.m. and 8 p.m. This is given in doses of 75 mg., 50 mg., 50 mg. and 75 mg. Almost without exception we have found that this regimen allows for relief of pain and beginning subsidence of symptoms within twelve to eighteen hours. This technique has proved to be quite satisfactory although the objection which may be raised is that the anticoagulant effect lasts only four hours, yet there is a long gap at night when no effect of heparin is evident. This is a valid criticism; however it has been found by employing this technique in many thousands of cases that this period does not impair the efficacy of the treatment.

To give heparin by continuous intravenous drip requires almost constant attention and even then is apt to be unreliable for simple change of position of the patient's arm can change the rate of flow enough so that in a short time the clotting time may reach infinity and real danger from bleeding presents itself.

Any bleeding encountered may be controlled by stopping the heparin and administering 5 to 10 cc. of 1 per cent protamine sulfate intravenously.

With the continuous technique the program worked out by Murray and Best[6] seems the most satisfactory. Ten mg. of heparin per 100 cc. saline (or glucose) is given intravenously at the rate of about twenty-five drops a minute. Lee-White clotting times are done every two or three hours making an effort to adjust the rate of flow so that the clotting time runs between fifteen and thirty minutes. The normal clotting time by the Lee-White method is five to eight minutes. Because the technique is cumbersome and time consuming we rarely use it, but prefer the Swedish technique.

TABLE I.

Prothrombin Per Cent	Time Seconds	Dicoumarol Dose mg.
20	30	100-200
15-20	30-35	50-100
10-15	35-40	25-50
10	40	omit drug 24 hrs.

Repository heparin—i.e., heparin in Pitken's menstruum, depoheparin, et cetera are not used in our hands for we have found that the absorption rate varies so much from person to person as to make the effectiveness quite unpredictable. Despite claims made to the contrary we have found that local reactions are numerous and results are not uniform; therefore we do not use repository heparin.

Dicoumarol therapy must be carried out in an entirely different manner. First of all the effect of dicoumarol is not manifest for twenty-four to forty-eight hours after administration. The drug is given by mouth but careful laboratory control must be effected daily. The patients prothrombin time is determined before administering any dicoumarol and if it is normal, 300 mg. of the drug is given. The following day a determination of the prothrombin time is again done, the dosage of dicoumarol being dictated by the plan outlined in Table I.

This dosage schedule is followed daily while the patient receives the drug.

During the first twenty-four to forty-eight hours of dicoumarol therapy there is no anticoagulant activity; therefore, to carry the patient over this period heparin should be used.

It has been our experience that dicoumarol is not as reliable as heparin in clearing up the signs and symptoms of thrombophlebitis. Extension of thrombophlebitis or pulmonary embolism has been noted with the patient's prothrombin time within therapeutic range. Similarly Wright has reported a number of cases of fatal bleeding when prothrombin levels were within therapeutic range.

Vein ligation has been advocated by Allen,[1] Pratt[7] and others. This consists of ligation of the common femoral vein and aspiration of any clots which may be present. We do not use this technique for it increases the existing stasis in the distal venous bed and contributes to extension of the thrombotic obstruction of the veins. Furthermore it does not afford adequate protection against pulmonary embolism for a large bed of veins including the iliac and pelvic veins remain from which emboli may arise. If there is indication for vein ligation we prefer to ligate the vena cava for this affords complete protection against embolism arising from the pelvic or leg veins. Our indications for vena cava ligation are (1) pulmonary embolism in a patient who for one reason or another cannot be treated with anticoagulants; (2) anticipated surgery in a patient with recent or recurrent thrombophlebitis, and (3) septic pelvic thrombophlebitis. The sequelae from vena cava ligation are few if the patient is treated with anticoagulants in the postoperative period.

TABLE II.

8 a.m.	75 mg.	or	100 mg.
12 m	50 mg.		75 mg.
4 p.m.	50 mg		75 mg.
8 p.m.	75 mg.		100 mg.

Heparin and/or dicoumarol may be used prophylactically in surgical cases. Such treatment has been found to markedly reduce the incidence of thrombosis and of pulmonary embolism. The method of treatment is similar and the results can be found in the work of Barker,[2] Jorpes,[4] Bauer[3] and others.

The social aspects of the application of anticoagulant therapy in thrombosis point up the importance and the economy of early vigorous treatment. About 0.6 per cent of all patients in surgical clinics suffer from thrombosis in the deep veins of the leg or from pulmonary embolism. The length of stay in the hospital used to be prolonged by six to eight weeks if thromboembolic complication occurred. Now with active treatment with heparin the hospital stay is rarely more than ten days and frequently is not prolonged over the normal hospital stay. With the cost of a hospital bed running from ten to twenty dollars a day, it is a real economy to use heparin at the cost of fourteen dollars a day to reduce the hospital stay by a fifth or a sixth. Furthermore in a series of untreated cases of thrombophlebitis originating in the calf 80 per cent spread to the deep veins of the thigh, while in a similar group treated with heparin 80 per cent of the cases remained limited to the calf leaving a normal leg for the future (Jorpes).[4]

Thus to recapitulate our treatment we examine patients daily for evidence of thrombosis and begin treatment upon suspicion of thrombosis. Heparin is given in the doses shown in Table II.

The legs are elevated and hot packs are applied from the toes to the groin and are kept wrapped with hot packs continuously until symptoms subside.

The patient is not allowed out of bed until the tenderness begins to subside; then the legs are wrapped in ace bandages and the patient is ambulated. After the patient has been symptom-free for three days the dose of heparin is decreased to 50 mg. three times a day for two days, then 50 mg. a day until discharge from the hospital.

Patients are instructed to continue wearing elastic bandage support until all swelling has subsided. This may mean three months, six months, six years or the rest of their life, however it is very important to emphasize the fact that they may have to wear the bandages a long time. They should not remove the elastic support until the physician tells them to do so. The bandage is wrapped from the toes to the knees, being applied upon arising in the morning and being removed before retiring in the evening. When the patient sits down in a chair the legs should, if possible, be elevated. It is preferred that the patient lie down with the legs elevated above the level of the heart any time during the day that he can as long as any swelling persists.

Such treatment will diminish the frequency of late varicosities, ulcer, stasic dermatitis, edema and painful leg.

Summary

1. Early, vigorous treatment of thrombophlebitis reduces complications and protects the patient against late sequelae.
2. Intermittent intravenous administration of heparin is the most practical method of anticoagulant administration for the majority of physicians.

References

1. Allen, A.; Linton, R., and Donaldson, G. A.: Thrombosis and embolism: review of 202 patients treated by femoral vein interruption. Ann. Surg., 118:728, 1943.
2. Barker, N. W.; Nygaard, K. K.; Walters, W., and Priestley, J. T.: A statistical study of postoperative venous thrombosis and pulmonary embolism. I, II, III, IV. Proc. Staff Meet., Mayo Clinic, 15:769-773, 1940; 16:1-5; 17-21 and 33-37, 1941.
3. Bauer, G.: Heparin therapy in acute deep venous thrombosis. J.A.M.A., 131:196, 1946.
4. Jorpes, E.: Heparin in the Treatment of Thrombosis. Second edition. London: Oxford Press, 1946.
5. Marple, C. D., and Wright, I. S.: Thromboembolic Conditions and Their Treatment with Anticoagulants. Springfield, Ill.: Chas. C Thomas, 1950.
6. Murray, D. W. G., and Best, C. H.: Heparin and thrombosis: the present situation. J.A.M.A., 110: 118, 1938.
7. Pratt, G. H.: Surgical Management of Vascular Diseases. Philadelphia: Lee & Febiger, 1949.
8. Smith, G. V. S., and Mulligan, W. J.: Dicoumarol prophylaxis against venous thrombosis in women undergoing surgery. Surg., Gynec. & Obst., 86: 461-464, 1948.
9. Wright, H. P.: The adhesiveness of blood platelets in normal subjects with varying concentrations of anticoagulants. J. Path. & Bact., 53:255-262, 1941.
10. Zilliacus, H.: On the specific treatment of thrombosis and pulmonary embolism with anticoagulants, with particular reference to the post thrombotic sequelae. Arch. Med. Scand. Supplement, 171:1-221, 1946.

GENOCIDE

While the nations of the world paid tribute to U.N.'s seventh anniversary, another voice was heard calling on all peoples to renew their faith in the dignity and worth of the human being. Paul Martin, Vice-Chairman of the Canadian Delegation to the General Assembly, recalled a resolution of a prior Assembly calling on all nations to make the mass killing of human beings for racial or religious reasons a crime punishable under international law. "Man's destruction of man for reasons of wild prejudice and unthinking bigotry must be checked once and for all, and I know of no better starting point than the immediate ratification of the Genocide Convention," said Mr. Martin.

Mr. Martin then reminded the world that one billion people now agree that the crime of genocide must be wiped off the face of the earth. Forty countries have ratified the United Nations Convention on the Prevention and Punishment of the Crime of Genocide, but they are not enough, said the Canadian delegate—"they must be joined by the other 20 until all sixty U.N. Member Countries are united. . . .

"On humanitarian grounds, mass killing must be stopped internationally lest it destroy the nations themselves. . . . In this present century alone, with only fifty-two years elapsed, 20,000,000 people have already been put to their death through the use of genocide. We must see that the next forty-eight years remain spotlessly clean."—*U.N. Reporter,* November, 1952.

PHYSICAL MEDICINE IN GENERAL PRACTICE

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PHYSICAL Medicine may be defined as that branch of medical science concerned with the use of physical measures in the diagnosis and treatment of disease or injury. As stated by the Council on Physical Medicine of the American Medical Association, this includes the employment of the physical, chemical, and other properties of heat, light, water, electricity, massage, manipulation, exercise, climate, and mechanical devices. Since World War II this field has been expanding rapidly to meet the needs of an ever widening group of patients who need more than the conventional treatment available by the usual methods of medicine and surgery. The emphasis is being shifted from the consideration of only the localized area requiring definitive treatment to a more careful consideration of the requirements of the patient as a whole. For example, in the case of an amputation instead of considering only the type of amputation to be performed, the healing of the wound, and the physical shock to the patient, it is now the duty of the physician or surgeon to consider carefully the necessity or usefulness of a prosthesis, the type of prosthesis to be employed, the strengthening and training of uninjured portions of the body to substitute for functions that would have been performed by the injured or amputated part, to consider the psychological effects of loss of a portion of the body, and to help in planning for the re-training of the individual, if necessary, so that he may be able to earn a living and return to the highest possible level of usefulness in society of which he is capable. In this concept of planning for the total care of the patient, the role of the general practitioner is even more important than it was under the previous concept. Since he is usually the person best acquainted with the patient, his family, his capabilities, and his problems, both physical and social, the general practitioner is usually the man most qualified to advise the patient and the workers who are contributing to the patient's rehabilitation. He sees the patient first and unless he is aware of the entire group of procedures which may be used in the patient's treatment, valuable time may be lost before these are carried out. In many instances, delay will prolong the patient's convalescence or even make maximal recovery impossible.

Physical Medicine Fields

Physical medicine is usually divided into four fields of endeavor. All of these, however, must be co-ordinated to accomplish the best results in the patient. These are:

Use of Physical Agents or Devices for Diagnosis.—Such procedures include muscle tests for the estimation of muscle strength, the use of electrical currents for diagnosis of nerve injuries and muscle function disturbances, measurement of range of motion and prevocational testing as well as the ordinary diagnostic procedures.

Physical Therapy.—This includes the use of heat, light, water, electricity, massage, and exercise in definitive treatment of the process which has caused the disability. It is used to restore the part and the patient to the best possible functional usefulness. For example, after fractures it may be necessary to restore range of motion and strength before useful function can be accomplished. This may be done by the use of such measures as the whirlpool bath followed by massage to get rid of swelling, range of motion exercises to prevent or overcome contractures, and active exercise carefully graded from motions requiring assistance to those where resistance may be employed in order to improve muscle strength so that adequate function is possible. In addition, heavy resistance exercise may be used to prepare other portions of the body for the functions needed. In those cases where crutch walking will be required, the upper extremities must be so strengthened that the patient can lift his entire body weight with the depressors of the shoulder and the triceps so that he may carry out elevation and ambulation using his hands in place of his feet.

Occupational Therapy.—Occupational therapy is used for three purposes. First, as functional treatment to increase range of motion and strength

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through activities which can be sustained over a long period of time without the loss of interest which occurs if monotonous repetitive exercises are given. Second, diversional occupational therapy for those patients who need psychologic treatment during long continued hospitalization or convalescence. This is done for the morale of the patient rather than for his physical condition. Third, in those patients where it may be difficult or impossible to tell what occupation he should attempt to learn after a severe disability, occupational therapy can be used as a prevocational testing medium to determine whether the patient's physical disabilities will make it impossible for him to carry on certain types of work, whether his skill and intelligence is such that the work can be done, and whether his attention span or endurance are sufficient for that particular occupation.

Rehabilitation.—This comprises a hodge-podge of rather unrelated activities directed toward restoring the patient to the highest possible social and economic level consistent with his disability. It includes such things as education, training in braille, lip reading, vocational training, and other special techniques for rehabilitation. The usefulness of a total program of rehabilitation is usually limited to the treatment of such serious disabilities as hemiplegia, paraplegia, severe poliomyelitic paralyses, amputations, cerebral palsy, post-encephalitic disturbances, multiple sclerosis, crippling disabilities following arthritis, and severe accidents. The treatment itself is successfully carried out only in especially equipped centers where trained and experienced personnel is available to solve the many individual problems which arise. In these cases the main function of the general practitioner is to recognize the need for and availability of such treatment and to see to it that his patient receives the best treatment available.

Commonly Seen Conditions

Aside from the serious disabilities, there are numerous common conditions seen in the general practitioner's office for which physical types of treatment are effective and practical and in which the treatment can usually be carried out successfully in his office or under his direction.

It would be impossible to discuss all of them because of the length of time required. However, I will list a few of the more important ones with some of the principles of treatment which I have found to be practical.

1. *Post Fracture Disability.*—If the original reduction of the fracture has been adequate and the fragments have been held in rigid apposition, the development of disability is usually due to fibrosis which follows prolonged swelling. The best treatment for this condition is given in the early stages of recovery before fibrosis has developed. This means that treatment must be started as soon as possible after the injury, immediately, if feasible, or at least within ten days to two weeks following the injury. The main object of treatment is prevention or removal of swelling. The most effective method for doing this is by active exercise. If the apparatus retaining the fracture in position can be so arranged or adjusted that active motion of neighboring joints and reasonably normal use of the extremity is possible throughout the healing period of the fracture, active exercise alone may be sufficient. If this cannot be done, the use of elevation or of heat followed by massage and active exercise may be needed to get rid of the swelling. In the later stages when the fracture is healed and fibrosis and limitation of motion have already developed, more drastic measures are needed. These will include the use of the whirlpool bath followed by massage and exercise, stretching of contractures, resistive exercise to develop strength, occupational therapy in prolonged cases, gait training, and other such procedures.

2. *Shoulder Disabilities.*—The first requirement for successful treatment of these disabilities is an accurate diagnosis of the factors causing the disability. The treatment varies greatly according to the diagnosis. Acute calcified bursitis is best treated by x-ray therapy, if it has not been present long enough for the development of contractures which limit function. Most of these patients will regain range of motion if pain is relieved. However, if the bursitis has been present for a week or two so that contractures have developed which limit motion, then x-ray therapy alone will not restore the part to normalcy. In such cases the use of hot packs with special attention to positioning the hot packs over the pectoralis major, latissimus dorsi, and teres major muscles followed by stretch to the scapulo-humeral joint may be necessary for the restoration

of normal function. In this event it is important to support the scapula so that the force of the stretch does not become exerted upon the scapulothoracic muscles instead of the scapulo-humeral muscles. This may be assisted by such simple exercises as relaxed circumduction, wall crawling, and use of the shoulder-wheel. However, it has been my experience that in those cases that have severe loss of scapulo-humeral motion the patient himself cannot carry out the exercise efficiently enough to restore motion. This same principle holds true in those patients who have limited shoulder motion from other causes such as periarthritis, fractures in the shoulder area, shoulder-hand syndrome, et cetera.

Many patients with pain in the shoulder radiating down the arm, particularly when parathesias are present in the fingers without loss of shoulder joint motion, have the source of disability in the cervical spine. It may be the result of a protruded cervical intervertebral disc or of osteoarthritic changes in the spine especially when bony spurs impinge upon the nerve roots as they pass out of the cervical foramina. The ordinary anteroposterior and lateral x-rays of the cervical spine will not show this condition. It is necessary to have oblique x-rays to demonstrate the openings of the foramina. These patients will not respond to treatment given to the shoulder. Most of them will be benefited, however, by the use of heat (I usually prefer shortwave diathermy) to the neck followed by massage for relaxation and then suspension using a Sayre head sling with a pulley suspended from the ceiling. Fifty to seventy-five pounds of pull for only thirty to sixty seconds with the patient in a sitting position repeated daily will often give relief from nagging pain which has been present for years.

3. *Osteoarthritis.*—Many patients with osteoarthritis regardless of location will obtain relief from various physical measures combining heat with massage and carefully graduated exercise. Often a program can be worked out which the patient can use at home over many years. Frequently shortwave diathermy or other more complicated procedures must be used which can be obtained only at the doctor's office. If this is the case the treatments can be given until relief is obtained and then discontinued until a new attack occurs at which time they can be resumed.

4. *Rheumatoid Arthritis.*—In rheumatoid arthritis physical measures are almost a necessity to maintain muscles, connective tissue, and joints in as functional a condition as possible until the acute disease has run its course. The use of cortisone and ACTH has made the use of such measures more effective in the chronic cases. While many practitioners have been disappointed in cortisone as a therapeutic measure in arthritis, because of its temporary nature and the fact that it cannot be continued over long periods of time without serious side effects, it is useful in relieving pain and assisting in the relaxation of muscles and fibrous tissue so that more effective physical therapy can be given to the patient which may in effect move the disease backward in its course so that function may be regained or maintained for longer periods.

5. *Coccygodynia.*—In coccygodynia, relief may be obtained even after many years of pain by the use of Thiele's technique which consists of the combination of heat with intrarectal massage, stroking from the sacrum to the pubis and stretching the tight fibrous and muscular bands which are the real cause of the pain. This has been effective in cases where pain has persisted even after removal of the coccyx.

6. *Backache.*—Of course, backache represents a widespread problem in general practice in which physical measures are useful. Again an accurate diagnosis is a prerequisite to successful therapy. It is not possible to go into an extended discussion of the differential diagnosis of backache. However, a few of the causes may be listed.

1. Protruded intervetebral disc
2. Tears of muscular attachments due to back strain
3. Fracture
4. Spondylolisthesis
5. Osteoarthritis
6. Rheumatoid arthritis
7. Marie-Strumpell spondylitis
8. Specific infectious arthritis including tuberculosis and osteomyelitis
9. Fibrositis
10. Fat herniations
11. Adiposus dolorosa
12. Senile osteoporosis
13. Post-partum osteoporosis
14. Schmorl's nodules
15. Multiple myeloma
16. Postural backache
17. Psychoneurosis

In many of these conditions, physical measures will bring relief. Even in definite disc protrusions, conservative treatment will bring relief in a great majority of the cases and certainly should be given an adequate trial before surgical removal is advised. Many of these patients suffer prolongation of pain because of muscle shortening in the back or hamstrings. This is true especially of the back muscles even after surgical removal of the disc. Hot packs or diathermy followed by careful stretching of the shortened muscles and graduated resistance exercises will often give relief and help prevent recurrence.

Tears of muscular attachments often need similar treatment especially for the relief of muscle spasm.

Fractures present the same problems in the back as elsewhere with the addition that where cord or nerve injury has occurred special rehabilitation may be advisable.

Spondylolisthesis is commonly symptomless until about age forty when the patient's muscular tone and strength has decreased. At this time heavy work or strain may produce symptoms for which an x-ray is taken which reveals spondylolisthesis. Very seldom do these patients need surgical fusion. Symptoms can usually be relieved by heat and massage and the patient can remain comfortable by readjusting his mode of living to avoid strain on his back. When the patient understands the mechanical principles involved he will usually make a good adjustment.

The arthritic conditions follow the same pattern as for the same conditions elsewhere in the body except that when fusion of the spine has become complete the patient will cease to have pain and can then live a normal life if there is no involvement of hips, shoulders or other joints.

Fibrositis requires special mention because prolonged relief requires not only heat and exercise but a special heavy friction type of massage to get rid of the fibrositic nodules. This massage is extremely painful and will aggravate the condition for two or three weeks; but if treatment is persistent, the patient will then improve and the improvement may continue for months or years.

Fat herniations and adiposus dolorosa are not usually very successfuly treated by physical measures.

Senile and post-partum osteoporosis may be relieved symptomatcially by heat and massage but the underlying cause is not removed. Testosterone and calcium or aluminum preparations have been used but I have not seen anything that will materially change the x-ray appearance. A body jacket or corset may be necessary in some extreme cases but old people do not like rigid supports and usually will not wear them. So I have found that symptomatic treatment repeated as attacks occur and specific advice on prevention of injury have been most practical. Schmorl's nodes are evidences of herniation of the nucleus pulposus into the body of the vertebra due to osteoporosis.

Multiple myeloma cannot be treated by physical measures.

Postural backache may result when mechanically inefficient backs are complicated by weakened muscles or injury. The most frequent underlying cause is exaggerated lordosis so that the center of gravity of the trunk lies anterior to the sacrum. In some cases sacralization of a lumbar vertebra or lumbarization of a sacral vertebra whether partial or complete may be a factor. In these patients postural exercise emphasizing anterior rotation of the pelvis to attempt to improve the weight bearing line plus abdominal and back strengthening exercises may be useful. They must be continued for long periods of time to be effective so it is best to teach the patient to carry them out at home.

Psychoneurosis presents the same problems in the back as elsewhere only more so. I saw one patient who had been so convinced by an osteopath that leg length inequality was the cause of her backache that she spent most of her time putting sheets of paper in her shoes and taking them out to find the exact height that would give her relief. However, physical treatment will often give the patient an excuse for getting well and thus give at least temporary improvement.

Summary

There are many other conditions in which physical medicine may bring benefit but since there is not time to enumerate them all, I will conclude by stating that the usefulness of physical methods of treatment has been established in a great variety of the minor as well as the major illnesses that the doctor in general practice is called upon to treat.

CANICOLA FEVER

Report of a Human Infection Due To Leptospira Canicola in Minnesota

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CANICOLA fever is a mild form of leptospirosis, caused by a spirochete, *Leptospira canicola.* It is an acute febrile disease, characterized by myalgia, headache and markedly injected conjunctivae. There may be meningeal, renal or hepatic involvement. The organism, *L. canicola,* cannot be differentiated morphologically from *L. icterohemorrhagiae,* the etiologic agent of Weil's disease. Unlike most leptospira, however, it has no known rodent host, being primarily a parasite of dogs.

In 1945, Green and Stavitsky[2] made a survey of leptospirosis in Minnesota. They tested 198 human sera for agglutinins for *L. icterohemorrhagiae* and found none with a significant titer. However, 15 per cent of the rats and 18 per cent of the dogs tested showed a significant agglutinin titer to *L. icterohemorrhagiae.* They were not tested for antibodies to *L. canicola.* Therefore, there is a potential reservoir for leptospiral disease in Minnesota.

In 1931 Klarenbeek and Schuffner[10] discovered in Holland a variant of *L. icterohemorrhagiae* which they called *L. canicola.* Since 1937, when Dhont first described the human disease, about 200 cases have appeared in the literature, most of them from Holland and Denmark.[8] The first case in the United States was described by Ashe in 1941.[1] Since then about twenty cases have been reported in this country.[8,9] The purpose of the present report is to present the first case of human canicola fever to be recognized in the State of Minnesota.

Case Report

C.S., Negro, thirty-seven-year-old packing house worker, was admitted to the Minneapolis Veterans Hospital on July 27, 1951 with high fever, chills, headache, malaise, severe muscular pains and sore throat of eighteen hours duration. The pain in the muscles of his left thigh was so severe that he was unable to move the leg. The admitting physician's diagnosis was poliomyelitis. The patient's temperature was 103° F., pulse 110, blood pressure 108/78. He appeared acutely ill with markedly injected conjunctivae and slight nuchal rigidity. There was marked muscular tenderness, especially in the legs.

His hemoglobin was 12.6 gm. per 100 cc., leukocyte count 12,860 with 89 per cent neutrophiles and sedimentation rate, 63 mm. in one hour. Urinalysis showed a trace of albumin. Brucella blood cultures, Kahn and sickling tests were negative; Brucella, Q fever, heterophile and cold agglutinins were all absent. Stool examinations and the chest roentgenogram were also normal. Because the clinical features suggested canicola fever, he was asked about recent contact with dogs. The patient stated that very recently his dog had developed paralysis of the hind limbs and had died, presumably of distemper. Efforts to obtain the dog's carcass were not successful. Studies for leptospirosis were then done. Guinea pigs were inoculated with the patient's urine and blood on July 31, 1951; they did not become ill and autopsy was normal six weeks later. Dark-field examination of the blood and urine was done with negative results on August 1, 1951. A spinal fluid examination was performed and was entirely normal. A muscle biopsy was obtained on July 30 and was also normal. Acute and convalescent sera were obtained for leptospiral antibodies. None of the sera contained antibodies for *L. icterohemorrhagiae.* On July 31, 1951, antibodies for *L. canicola* were absent but on August 8, and again on August 31, they were present in a titer of 1:512. Antibodies for *L. pomona* were present in a titer of 1:64 on August 8, but were absent in the other sera.

The patient remained febrile with a plateau fever of about 102° F. for six days with gradually subsiding myalgia and generalized weakness. He had an uncomplicated convalescence. At present he is working every day and has no complaints.

Comment

This case emphasizes the need for agglutination studies for leptospiral diseases whenever one sees a patient with fever together with muscle pain, meningismus, and injected conjunctivae. This is especially true if there has been contact with a sick dog. It should also be noted that the initial diagnosis was poliomyelitis. The muscle pain is frequently so severe that the patient will not move his arms or legs and a primary neurological disease may be considered. Several errors were made

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TABLE I. THE INCIDENCE OF VARIOUS SYMPTOMS IN CANICOLA FEVER

	Per cent
Headache	80
Myalgia	70
Chills	52
Gastro-intestinal Symptoms	51
Mental Symptoms	29

Adapted from Rosenberg[8].

TABLE II. THE INCIDENCE OF SOME PHYSICAL ABNORMALITIES IN CANICOLA FEVER

Signs	Per cent
Fever	100
Injected Conjunctivae	48
Meningeal Signs	48
Bradycardia	39
Petechiae	20
Respiratory Symptoms	19
Rash	15
Icterus	13
Palpable Liver	8
Herpes Labialis	5
Palpable Spleen	2.4

Adapted from Rosenberg[8].

TABLE III. COMMON LABORATORY FINDINGS AND THEIR INCIDENCE IN CANICOLA FEVER

	Per cent
Rapid Sedimentation Rate	100
Albuminuria	75
Spinal Fluid Changes	42
Leucocytosis	41
Microscopic Hematuria	36
Azotemia	32

Adapted from Rosenberg[8].

in attempting to establish a laboratory diagnosis. The patient's blood should have been injected into a hamster instead of a guinea pig. The muscle biopsy was done early in the illness and should have been done after the third week. The transient low titer of antibody for *L. pomona* probably was nonspecific.

Discussion

Canicola fever is a natural and frequent illness in dogs. Meyer[5] has estimated that approximately 25 per cent of all dogs have had the disease. Approximately two-thirds of the human cases give a history of exposure to dogs. The disease is transmitted via the urine of infected dogs to humans through mucous membranes, the gastrointestinal tract or breaks in the skin. In addition to direct contact with dogs, it can also be transmitted by bathing in contaminated water.

The disease in dogs was at one time called Stuttgart or canine typhus. It produces an illness which is quite similar to distemper although there are no pulmonary manifestations. The dog has a high fever, paresis of the hind legs and gastrointestinal symptoms. As in humans, the disease has diverse symptoms and varies greatly in severity from no symptoms at all to those proving rapidly fatal. Death is apparently caused by renal involvement and uremia.[4] Only 3 per cent of the dogs have jaundice. It is three to five times as frequent in male dogs as in females. Dogs also may become infected with *L. icterohemorrhagiae;* this organism produces a more severe illness accompanied by hemorrhagic phenomena and jaundice.

The disease in humans is characterized by a sudden onset with chills and a temperature of 103° to 104° F. after an incubation period of one to three weeks. The fever is accompanied by headache, photophobia, muscle tenderness, nausea and vomiting (Table I). Signs of meningeal irritation are very common with stiffness of the neck and a positive Kernig's sign (Table II). The patients are often thought to be suffering from meningitis or poliomyelitis. Where the meningeal symptoms are slight or absent, the illness may be mistaken for severe influenza. In some cases pulmonary or cardiac findings may be prominent. The conjunctival vessels are often markedly injected. Skin eruptions, either morbilliform or scarlatiniform, are more common than in Weil's disease. Jaundice occurs in only 13 per cent of the cases, is usually mild and appears on the fourth to the sixth day. About this time renal findings such as albuminuria and microscopic hematuria also are found (Table III). Some case reports stress oliguria and there may be a rise in the blood urea nitrogen. The extent of kidney damage varies widely; in mild cases there may be only transient albuminuria. Gastrointestinal symptoms such as nausea, vomiting and diarrhea occur in over half of the cases and may be quite prominent. One frequently observes mental symptoms such as irritability, insomnia and anxiety, probably the result of encephalitis.

An increased sedimentation rate has been reported in every case. A neutrophilic leukocytosis is frequent but the leukocyte count may be within normal limits. Although the spinal fluid may be normal, there is often an elevation of the leukocyte count, usually to 12 to 200 per high power field. These cells are usually lymphocytes although a high percentage of polymorphonuclears may be found early in the disease. In contrast to bacterial meningitis, the spinal fluid sugar is normal although the spinal fluid protein is usually elevated.

All victims have fever, two-thirds having a temperature over 103° F. The type of fever curve varies and the patients are febrile for about one week. In about one-half of the cases the patient may have a relapse with return of symptoms at the end of the second week. Rarely several relapses occur. Convalescence is usually prolonged, with complaints of weakness and fatigue. There may be some residual muscle tenderness.

Complications occur in about 15 per cent of the cases and are usually mild and transient. Alopecia, which is frequently seen in the dog, occurs occasionally in human beings. Eye complications are common with photophobia and blurring of vision during the acute illness. Later diplopia, iridocyclitis, vitreous opacities, optic neuritis and retrobulbar neuritis may occur.

Iridocyclitis has been mentioned as a frequent complication and it is recommended by many ophthalmologists that patients with idiopathic iridocyclitis should have tests for leptospiral agglutinins. Neurological complications such as subarachnoid hemorrhage and brachial and sciatic neuritis are seen occasionally.

Fortunately, canicola fever is usually a benign illness and death is rare, only three fatal cases having been reported. It is difficult to ascertain the cause of death in these cases. In the two cases studied at autopsy, the impression of the authors was that the patients died in uremia with acute renal insufficiency due to tubular damage.[13]

Although Ashe[1] feels that a clinical diagnosis can be suspected from the symptoms, physical findings and a history of exposure to dogs, a definite diagnosis can only be established by laboratory means. During the first few days of the illness, the "septicemic phase," the diagnosis can occasionally be made by injection of blood into hamsters.[12] Though susceptible to *L. icterohemorrhagiae,* guinea pigs are resistant to *L. canicola* and should not be used. After the first ten days the organisms may be found in the patient's urine. Dark-field examination of the blood has also been used but is of little value. Some experienced observers have been able to find leptospira by dark-field examinations of the urine after the tenth day. Blood and urine cultures are not used routinely because growth is frequently delayed for several weeks. The best diagnostic test is the agglutination-lysis test of Schuffner and Mochtar.[10] The disadvantage of this test is that the diagnostic titers do not appear until the tenth to fourteenth day. A diagnostic titer is 1:300 or above. Cross agglutination with other leptospiral antigens may occur and not infrequently there is some elevation of agglutinins to *L. icterohemorrhagiae* and *L. pomona.**

The most common mistake has been to confuse canicola fever with one of the following diseases: Meningococcal meningitis, influenza, typhoid, poliomyelitis, serous meningitis, infectious hepatitis, acute gastroenteritis, infectious mononucleosis, trichinosis and carbon tetrachloride poisoning. Occasionally the severe muscle pain has led to a diagnosis of a surgical abdomen and two cases have been operated on mistakenly for appendicitis and gallbladder disease. There is a clinical aphorism that in a patient with jaundice and renal disease one should consider the possibility of carbon tetrachloride poisoning and leptospirosis.

Sheldon[11] described changes seen in skeletal muscle in Weil's disease and advocated muscle biopsy as a diagnostic procedure. The early finding is muscular necrosis with a very slight amount of inflammation. The diagnostic change occurs later in the healing stage with a striking amount of sarcolemmal nuclear proliferation. It is not advisable to take the biopsy until at least the tenth day of illness and preferably after three to four weeks. This test remains positive for several months. The best way to make the diagnosis early in the disease is to have the dog examined by a veterinarian if there is a history of exposure. The leptospira are easily found in the kidneys.[13] An early diagnosis may also be made by inoculating the patient's blood into a hamster or in Schuffner's culture media.[12]

Because the disease is self-limited and relatively benign, it is difficult to determine the value of various forms of therapy. Antibiotics have been used both experimentally and clinically. Penicillin has been used most often and has been found to be leptospirostatic *in vitro.* Some authors are quite enthusiastic while others claim it is of little value in leptospirosis. There appears to be a varying response; it is more effective when given early. Penicillin does not prevent relapses nor does it eliminate leptospiuria. Because of this, some authors recommend the concomitant use of streptomycin in eradicating the leptospira from the urine. Aureomycin and terramycin have also been reported to be beneficial.[3] The majority at this time seem to favor the use of aureomycin or terramycin as early as possible in the disease, although there is insufficient evidence to prove their value. All dogs suspected of having the illness should be isolated and treated until there is no further evidence of leptospiuria. Penicillin has been said to be of value in the dog.[12]

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*In all cases where the clinician suspects leptospirosis, both acute and convalescent sera should be sent to the laboratories of the Minnesota State Board of Health which will forward the sera to the Communicable Disease Center of the U. S. Public Health Service at Chamblee, Georgia.

Summary

A case of human canicola fever has been reported, the first to be recognized in Minnesota. The diagnosis of canicola fever should be included in the differential diagnosis of any unexplained febrile illness. Conjunctivitis and meningitis are common and jaundice is rare in the disease. Inquiry into history of exposure to dogs and repeated serum agglutination studies are most helpful. Because of the vast canine reservoir of the disease, the human disease may not be rare. Knowledge of the clinical features and available diagnostic tests should lead to the recognition of many more cases.

References

1. Ashe, W. F.; Pratt-Thomas, H. R., and Kumpe, C. W.: Weil's disease, A complete review of American literature and an abstract of the world literature. Medicine, 20:145-209, 1941.
2. Green, R. G., and Stavitsky, A. B.: A survey of leptospirosis (Weil's disease) in Minnesota. Minnesota Med., 28:549-550, 1945.
3. Liebowitz, D., and Schwartz, H.: Leptospiral infection in man treated with terramycin. Report of a case. J.A.M.A., 147:122-123 (Sept. 8) 1951.
4. McIntyre, W. I. M., and Montgomery, G. L.: Renal lesions in leptospira canicola infections in dogs. J. Path. & Bact., 64:145-160 (January) 1952.
5. Meyer, K. F.; Stewart-Anderson, B., and Eddie, B.: Canine leptospirosis in the United States. J. Am. Vet. M.A., 95:710-729, 1939.
6. Meyer, K. F.; Stewart-Anderson, B., and Eddie, B.: Epidemiology of leptospirosis. Am. J. Pub. Health, 29:347-353, 1939.
7. Molner, J. G.; Meyer, K. F., and Ruskin, H. A.: Leptospiral infections, a survey. J.A.M.A., 136: 814-819, 1948.
8. Rosenberg, Bernard L.: Canicola fever. Am. J. of Med., 11:75-91 (July) 1951.
9. Rosenbaum, H. D.: Canicola fever, case report and review of the literature. Arch. Int. Med., 78:531-543, 1946.
10. Schuffner, W. A. P.: Recent work on leptospirosis. Tr. Roy. Soc. Trop. Med. & Hyg., 28:7-37, 1943.
11. Sheldon, W. H.: Lesions of muscle in spirochetal jaundice (Weil's Disease: Spirochetosis Icterohemorrhagiae). Arch. Int. Med., 75:119-124, 1945.
12. Stavitsky, A. B.: Leptospira Infection in Diagnostic Procedures and Reagents, Third Edition, pp. 315-346. New York: American Public Health Association, Inc., 1950.
13. Wolff, J. W.; van Dam, R., and Minkenhof, J. E.: The first known fatal case of canicola fever. Lancet, 1:1100-1102 (May 19) 1951.

RECKLESS DRIVERS—RECKLESS JURIES

We observe with horror and discouragement the loss of life of the flower of our youth in modern warfare. In September, 1951, the millionth American military man died in the service of his country since 1775. The millionth motor vehicle victim died in December, 1951, and the count only started in 1900!

Every day we read in the newspapers of traffic accidents. Only the spectacular rate headlines. The average reader shows little interest unless he knows or is related to the victims.

Those in the automobile insurance business have the opportunity to study claim reports daily. We know the causes of accidents. The following are typical:

Speeding, the cause of over half of all motor vehicle accidents; drunken driving; driver had "only one drink"; failure to stop on signal; brakes failed to hold; failure to stop at stop sign; failure to yield right of way; driving over center line; bad judgment in trying to pass the car ahead; insured's young son learning to drive; showing off, racing and stunt driving; driver had defective vision; driver had epileptic fit; driving on wrong side of road; elderly driver, hard of hearing—became confused.

This list embraces over 90 per cent of all of the reasons why automobile accidents happen. All of them are preventable or involve drivers who should not be permitted behind the wheel of an automobile.

Insurance companies have lost many millions of dollars over the past several years in underwriting automobile business, especially those forms involving liability for bodily injury and property damage. Premiums have been increased in almost every state in the Union. It is now evident that because of the increased amount of money insurance companies have had to pay out or set aside as reserves for losses, a further advance in the premium level will eventually be required. Accident frequency is increasing, more people are being killed and injured, and settlement values and court verdicts have reached an all-time high.—*Fireman's Fund Record,* August, 1952.

MELANIN SPOTS OF THE LIPS, ORAL MUCOSA AND DIGITS ASSOCIATED WITH INTESTINAL POLYPOSIS

Report of a Case

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RENEWED interest in the syndrome of melanin pigmentation of the lips, oral mucosa and digits associated with intestinal polyposis has been manifest in the medical literature since 1949. It is now well established that the presence of melanotic spots in these locations indicates further investigation of the patient to rule out intestinal polyposis.

Sir Jonathan Hutchinson,[5] in 1896, was the first to report the distinct melanin pigmentation that is characteristic of this syndrome, in identical twins. There was no mention made of the presence or absence of pigmented areas of the hands. Hutchinson was not aware of the presence of any intestinal trouble in either twin. However, Weber,[12] in 1919, reported a follow-up study on these cases and stated that one twin died at the age of twenty from intestinal intussuception, and the second twin died at the age of fifty-two of cancer of the breast.

Dermatologists have been aware of the peculiar melanotic pigmentation of the lips, oral mucosa, face and digits for some time prior to the association of this syndrome with intestinal polyposis. In 1921, Peutz,[9] of the Hague, described a family in which several members had pigmented spots of the mouth, hands, and feet with intestinal polyposis. This report represents the first reference in the medical literature to the syndrome by a specific title and the earliest to stress the association of pigmentation with intestinal polyposis.

Van Dijk and Oudendal,[11] in 1925, reported the incidence of a brother and sister who underwent surgery because of repeated episodes of intestinal colic. Intussusception of the ileum secondary to adenomas of the small bowel was found. Both brother and sister had pigmentation of the lips and buccal mucosa.

Foster,[3] in 1944, published the report of a father and daughter who suffered from single small bowel polyps complicated by intussusception. They both showed the characteristic circumoral pigmentation. The father's brother, who also had similar lip and facial pigmentation, was subject to attacks of abdominal pain and bloody stools. He was found to have an inoperable carcinoma of the stomach. This man's son also had attacks of abdominal pain as well as unusual pigmentation of the oral mucous membrane and lips.

Touraine and Couder[10] reported another case in 1945. Jeghers[6] is primarily responsible for calling attention in the American medical literature to this hitherto unappreciated syndrome. In 1944 he briefly reviewed the literature and mentioned two proven cases. Recent interest in this syndrome was renewed following a comprehensive review of the literature and case reports of ten patients by Jeghers, McKusick and Katz[7] in 1949. Since then, four additional cases[1,7] have been reported in the literature to give a total of twenty-five proven, five probable, and four possible diagnoses of this unusual syndrome.

Pigmentation

The pigmentation in this syndrome is most striking on the lips and buccal mucosa, presenting as round, oval, or irregular patches of brown or occasionally almost black pigment. The patches on the lips and buccal mucosa vary in size from 1 to 5 mm. or slightly larger in diameter. Patches in the mouth are most prominent on the buccal mucosa, occasionally on the gums, or hard palate, and more rarely on the tongue. Pigmentation of the lips is more noticeable on the dental than on the outer aspect and more numerous on the lower lip. Pigmented spots may be found on the upper lip and more rarely involving the skin about the mouth and on the fingers and toes. Histologic study of a pigmented lesion reveals a collection of melanin to be distributed in vertical bands through the epidermis. The salient factor is that the labial and buccal mucosal pigmentation must be present in order to diagnose this syndrome; digital and facial pigmentation are merely complementary if found. The pigmentation must not be confused with ephelides (ordinary freckles) which do not occur on the mucous membrane of the oral cavity.

Inaugural thesis presented before the Minneapolis Academy of Medicine, April, 1952, and before the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 8, 1952.

Figure 1 shows the characteristic pigmentation. Jeghers[6] calls the buccal mucosal pigmentation the sine qua non of the syndrome.

The sex distribution in the reported cases is equally divided between male and female. Most of the patients were dark complexioned. In each patient where data were available, pigmentation had been present from early in childhood to the age of twenty or more with little or no tendency to fade prior to that time. Peutz[9] observed some fading of the facial pigmentation after the age of twenty-five, but the oral pigmentation persisted.

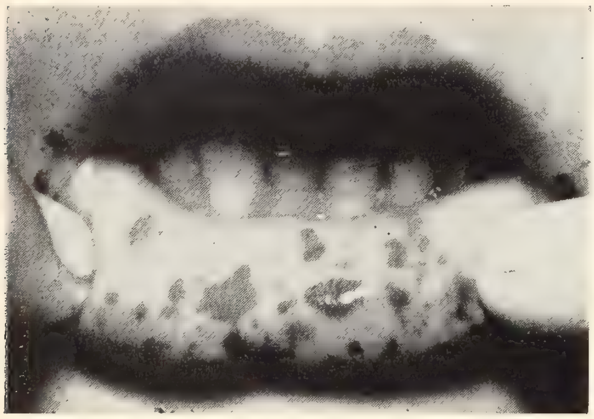

Fig. 1. Characteristic melanin pigmentation of the lips and buccal mucosa, as demonstrated by case reported.

Intestinal Polyposis

The other phase of the syndrome consists of intestinal polyposis. In the reported cases the polyps were distributed throughout the entire intestinal tract with their most striking clinical manifestations in the small intestine. Polyposis was also present in the stomach, colon and rectum in a number of the patients; however, the jejunum led the other intestinal segments by far, as the most frequent location for polyps.

The intestinal lesions are the usual adenomatous polyps. The well-known tendency for multiple polyposis of the colon to develop malignancy holds to some degree for the small bowel polyps in cases of this syndrome. The incidence of cancer here is not so great as that in the hereditary large bowel polyposis but is distinctive enough, nevertheless. Small bowel polyps developed malignancy in six diagnosed patients of the twenty-five case reports in the literature.

Four of Peutz's[9] patients had nasal polyposis and one had polyposis of the bladder. Jeghers[7] and associates reported one patient with the classical pigmentation in which they were unable to establish intestinal polyposis after thorough investigation. Actual polyps present are shown in Figure 2.

Heredity

It is well established that multiple polyposis of the large intestine is frequently hereditary. Dukes,[2] in an exhaustive review of the subject, concludes that "it is an inheritable disease which is transmitted by both males and females, that both males and females suffer from the disease, and that inheritance can be traced through several generations." Gates[4] reviewed the genetic aspects of polyposis of the large intestine and was able to discover the pedigree of a total of forty families in the literature. He concluded that the condition is a simple Mendelian dominant with an occasional skip in some families.

Multiple polyposis of the small intestine or of the entire gastrointestinal tract, as seen in the syndrome under discussion, appears to be an entity distinct from the more common colonic polyposis, yet available data indicates that it follows a similar genetic pattern; that is, the syndrome appears to be inherited as a simple Mendelian dominant. Both males and females carry the factor, and both are affected about equally. Jeghers[7] suggests that variability may at times be present in the hereditary pattern of this syndrome, although no definite evidence of it has been established to date. It might be subsequently demonstrated that in the same family some members show only polyposis and some only spots.

Case Report

The patient, a twelve-year-old white boy, was referred to our office by Dr. O. L. N. Nelson on June 25, 1951. This patient previously had been studied and reported as one of the small group with this unusual syndrome by Drs. Perry and Zuska[8] at the Naval Medical Center, Bethesda, Maryland. A polyp of the descending colon was resected at that institution in 1949. He was subsequently advised to have periodic gastrointestinal x-ray studies and sigmoidoscopic examinations.

Past History.—This patient's past history is extremely interesting. His illness had its clinical onset when, between the ages of nine and twelve months, he had his first episode of subnormal temperature, pallor, listlessness, abdominal distress, and repeated vomiting. Medical advice was sought, but no therapy was instituted because the symptoms subsided in a few days. When the child was between nine months and six years of age he suffered five or six similar episodes, each characterized by sudden onset. During this entire period he was a sick, underweight child with many feeding problems; in particular, the morning meal was vomited after eating. Many physicians were consulted and the consensus was that the mother wasn't feeding the child correctly.

In 1944, at the age of six years, another episode of high intestinal obstruction occurred. He was then hospitalized for fifteen days. During this period an exploratory laparotomy was performed and a double intussusception of the proximal jejunum was found. Two large polyps of the jejunum were responsible for the intussusception. A segmental resection with end-to-end anastomosis was performed. The postoperative course was uneventful and the patient has had no further signs of intestinal obstruction since the operation. Histologically, both polyps were reported as benign.

One year later several polyps protruding from the boy's anus were excised. The patient's family was advised that he should have yearly barium enema studies along with proctoscopic examinations. When he was between the ages of seven and eight years, five or six new rectal polyps were discovered and excised. Again, at the age of eight another rectal polyp was fulgurated.

The patient had no more difficulty until July, 1949, when a large polyp of the descending colon was discovered by roentgenogram. He was then hospitalized at the Naval Medical Center at Bethesda, Maryland, where the syndrome of melanin spots of the lips, oral mucosa, and digits was first associated with his intestinal polyposis and labeled as such. His pigmentation, however, had been present since birth. A colotomy was performed and the polyp excised. No other abnormality was noted on abdominal exploration and the polyp was reported as a benign adenomatous type.

Family History.—Neither maternal nor paternal grandparents showed any signs of melanin spots or intestinal polyposis. Two are living and well. One died of pulmonary tuberculosis and the other of uremia. No other relatives could be implicated with this syndrome and both father and mother are living and well. There is one sibling, a brother, aged sixteen years. Careful examination revealed two questionable melanin spots of the dorsum of his left hand. However, proctoscopic, upper gastrointestinal x-rays with stasis studies, and a double contrast barium enema were all negative. This patient studied apparently represents a sporadic incidence of this syndrome.

Follow-up studies were non-revealing until June of 1951. At this time double contrast barium enema studies revealed another polyp of the descending colon. Proctosigmoidoscopic examination revealed a small (2 x 2 mm.) sessile adenoma of the right rectal wall at 7 cm. This was fulgurated. No other abnormality was noted as far as 25 cm.

The patient was admitted to St. Barnabas Hospital on June 29, 1951. At this time he was asymptomatic and he appeared to be a normal, well-developed and well-nourished twelve-year-old white male, weighing 120 pounds. The mucous membrane of the lower lip was diffusely mottled with dark greyish black pigment deposited in patches of varying size. These lesions were not elevated. On the skin about the lips there were a lesser number of similar lesions, some slightly elevated, and in addition a few pigmented areas were present on the oral mucosa. The hands and feet appeared normal. The temperature was 98° F.; the blood pressure 112/70 mm. Hg. and the pulse 76.

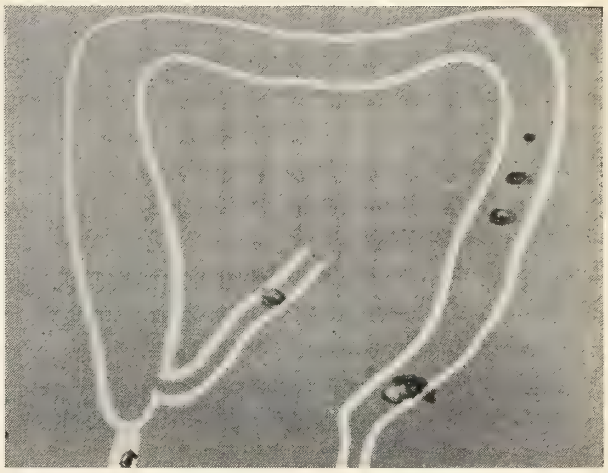

Fig. 2. Sketch of the terminal ileum, appendix and colon with actual polyps in their approximate locations.

The laboratory reported a red blood count of 4,320,000, hemoglobin, 14.4 gm. and white blood count, 8,100; differential and urinalysis were normal.

Preoperatively he received intestinal preparation with a suspension of sulfathaladine for one week and terramycin for two days. On July 2, 1951, a laparotomy was performed. Palpation of the descending colon readily identified the polyp found at x-ray. It was deemed advisable to examine the remaining gastrointestinal tract and so the stomach and entire intestinal tract were carefully threaded through palpating hands several times. The stomach and duodenum were normal. Six inches distal to the ligament of Treitz evidence of a previous resection and anastomosis was noted. The remaining small bowel was negative, except for the distal ileum. In this segment of bowel, approximately four feet proximal to the ileocecal valve, a polyp was palpated. An ileotomy was performed and a pedunculated polyp 2 cm. in diameter was excised with a cuff of adjacent mucous membrane. The bowel was incised longitudinally and closed transversely.

The colon was next carefully palpated several times. In the region of the distal descending colon the polyp which was discovered on x-ray was easily palpated. A longitudinal colotomy was made over the midpoint of excursion of the palpable polyp. A pedunculated polyp 3 cm. in diameter was visualized and excised over a clamp with an adjacent cuff of the mucous membrane. A sterile sigmoidoscope was next introduced via the colotomy incision to visualize the distal descending and entire sigmoid colon, and no abnormality was noted. The colon was then visualized to the splenic flexure. Three other pedunculated adenomas varying in size from 0.5 to 1.0 cm. were visualized scattered over the descending colon. These were excised at their origin with the fulgurating snare and the bases were then fulgurated as were two smaller match-head-sized adenomas in the same area. The colotomy was closed longitudinally.

Before closing the abdomen, the appendix was inspected and since several fecoliths could be palpated it was deemed advisable to remove the appendix, prophylactically. On longitudinal section two sessile 3 x 3 mm. adenomas were noted in its midportion. All polyps were reported as benign adenomatous polyps. The convalescence was uneventful and the patient was discharged from the hospital on the eighth postoperative day.

Follow up x-ray studies on January 3, 1952, reported no demonstrable involvement of the colon or upper gastrointestinal tract. Proctosigmoidoscopic examination, however, revealed a small sessile adenoma of the rectum at 8 cm. This was destroyed by fulguration.

Conclusions

A brief review of the literature and a follow-up case report of a patient with the unusual syndrome of melanin pigmentation of the lips, oral mucosa and digits with associated intestinal polyposis is presented. This case is probably a sporadic instance of a syndrome which is usually clearly hereditary and transmitted as a simple Mendelian dominant.

When pigmentation of the type described is seen, small and large bowel polyps should be searched for diligently by roentgen studies of the gastrointestinal tract and by sigmoidoscopic examination.

Careful follow-up studies are imperative if we hope to avert the malignant tendency that may occur in many of these cases, as well as to detect new polyps as they arise.

Bibliography

1. Behrer, M. R.: Jejunal polyposis with intussusception and melanin spots. J. Pediat., 38:642, 1951.
2. Dukes, C.: Hereditary factor in polyposis intestini, or multiple adenomata. Cancer Rev., 5:241-256, 1930.
3. Foster, O. B. E.: Adenocarcinoma of small intestine in father and daughter. Brit. M. J., 2:78, July 15, 1944.
4. Gates, R. R.: Human genetics. Vol. 2. P. 1172. New York: The MacMillan Co. 1946.
5. Hutchinson, J.: Pigmentation of the lips and mouth. Arch. Surg. (London) 7:290, 1896.
6. Jeghers, H.: Medical progress, pigmentation of skin. New England J. Med., 231:88-100, 122-136, and 181-189, 1944.
7. Jeghers, H.; McKusick, V. A., and Katz, K. H.: Generalized intestinal polyposis and melanin spots of the oral mucosa, lips, and digits. New England J. Med., 241:993-1005 and 1031-1036, 1949.
8. Perry, B. F., and Zuska, J. J.: Syndrome of circumoral pigmentation associated with generalized intestinal polyposis. Med. J. U. S. Armed Forces, I: 773, 1950.
9. Peutz, J. L. A.: Very remarkable case of familial polyposis of mucous membrane of intestinal tract and nasopharynx accompanied by peculiar pigmentation of skin and mucous membrane. Nederl. Manndschr. V. Geneesk, 10:734, 1921.
10. Touraine, A., and Couder, F.: Syndrome de Peutz. Ann. de dermat. et syph., 5:313, 1945.
11. Van Dijk. J. A., and Oudendal, A. I. F.: Adenomas responsible for intestinal invagination. Nederl. Tijdschr. & Geneesk, 1:966 (Feb. 28) 1925.
12. Weber, F. P.: Patches of deep pigmentation of oral mucous membrane not connected with Addison's Disease. Quart. J. Med., 12:404, July, 1919.

HILL-BURTON HOSPITAL CONSTRUCTION PROGRAM SLOWING DOWN

During six years, the Hill-Burton Hospital Construction program has approved 1,877 projects for federal grants totaling just over *half a billion dollars.* Of the 90,645 beds, about 44 per cent already are in operation, the remainder under construction or in planning stages.

The latest progress report, as of September 30, also shows that inflation and budget restrictions are rapidly slowing down the program. In fiscal 1950 a total of 537 projects were completed or on the books; the total for the current fiscal year is not expected to exceed 150.

For fiscal 1948, and 1949, the first full years of operation, appropriations were $75 million annually. In 1950, Congress increased the maximum limit to $150 million, and voted the full amount. Appropriations for the subsequent three years were $85 million, $82.5 million and $75 million. Meanwhile, construction costs per bed increased, according to hospital authorities, about 50 per cent.

The program was designed particularly to build small hospitals and in rural areas, but from the start a high percentage of the funds has gone to relatively large institutions in urban areas. On this the analysis supplied by Division of Hospital Facilities, Public Health Service, states: "Although 57 per cent of the new projects are for facilities with fewer than fifty beds, *only 25 per cent of the federal funds . . . (go) . . . to these smaller facilities.* A little more than half of the federal money for new hospitals assists facilities with 100 or more beds. For additions or alterations, 82 per cent of federal funds is going to hospitals with 100 beds or more." With emphasis on larger, long-range jobs (nineteen medical school-connected hospitals on current list), reduced grants are not immediately reflected in the administrative workload, which is expected to continue at about its present level for several years.

Under the law, funds are allocated to states for distribution. Determination of what projects to assist is the responsibility of the state hospital authority, based on a survey of hospital facilities and willingness of local communities to make plans and raise money.—*Capitol Clinic,* November 4, 1952.

MANAGEMENT OF CUTANEOUS MALIGNANCIES

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IT IS unusual today to have a patient first present himself with an advanced carcinoma of the skin. Campaigns to acquaint the layman with the danger of neglecting skin lesions have been on the whole quite effective. Many of the lesions we are asked to see are now in the precancerous stage. Nevertheless we are still shocked out of any sense of complacency by the occasional patient who presents himself for the first time with a far gone cancer. Far more shocking, however, is the case of the patient who has dutifully presented himself to his physician with an early insignificant looking sore and now, because of neglect or ineffective treatment, comes in with a deep hole in his face or swollen regional lymph nodes. It is to forestall this situation that I should like to review the common cutaneous malignancies and present a plan for their management.

Premalignant conditions deserve separate consideration because they pose a difficult problem. What is a precancerous lesion? The best definition I have heard is—any sore that does not heal in three or four weeks. The most common precancerous skin lesion is senile keratosis.[2] These brownish, slightly elevated patches, often with a crusting or scaling appearance, frequently are so widespread on the skin of an elderly patient that one does not know where to start or stop in their treatment. Certainly it would be a very major undertaking to try to remove all the keratotic patches regardless of the method used; yet we know they may have serious potentialities if not treated. For this reason I treat all patches which show any sign of ulceration or recent change. Usually thorough fulguration with a high frequency spark after biopsy of suspicious areas will provide effective control. The use of x-ray in treatment of these lesions is to be discouraged unless they have been shown to be frankly malignant. Senile keratoses are not infrequently the predecessors of squamous cell carcinoma. Their usual location is on the exposed surfaces of the body, namely, face and dorsum of the hands.

Seborrheic keratoses,[3] unlike the preceding variety, occur more commonly on the trunk. They are sharply circumscribed papules or tumors, yellowish to brown in color, and usually have an oily scale. These lesions while not as dangerous as senile keratoses will sometimes break down and become carcinomatous. They are also preferably treated by excision, cautery, or fulguration and not by x-ray or radium.

Pigmented nevi or moles likewise present a problem which is difficult to answer. They may vary from a few lightly pigmented spots present since birth to wide areas of densely pigmented skin, the "bathing trunk" nevus. Black areas are also frequently found in seborrheic keratoses. In general, they are harmless, especially if congenital and not in areas exposed to irritation and if they show no evidence of growth. Moles on hands or feet are especially dangerous. Signs of malignancy are any visible growth in a previously quiescent mole, or the development of a mole in a previously normal area. Degree of pigmentation is of no significance. Should the lesion exhibit these signs of being a malignant melanoma, treatment must be on an all-out basis with wide excision of the primary and preferably a block resection of the regional lymph nodes. Fulguration and irradiation have no place in treatment of these lesions. They are almost totally radioresistant. Ineffective treatment may be worse than none by stimulating the local lesion to more active growth and production of "daughter" colonies surrounding the primary lesion.

Much the most common cutaneous malignancy at our clinic is basal cell carcinoma.[1] In its earliest form it may appear as a minute scaling or crusting area or as a pearly nodule. Later the nodule shows a small ulceration in its center and often has a typical elevated or rolled edge. Still more advanced cases become deeply excavated ulcers—the so-called rodent ulcers, which slowly but relentlessly erode through all tissues including bone, and produce the horribly dished out lesions of the facial region. Favorite site for basal cell carcinoma is the nose and adjacent area of the cheek. They may, however, occur on any part of the face and are common in the scalp. These tumors are supposed to be only locally in-

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Read at the Annual Meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 8, 1952.

vasive. It is not unknown, however, for metastases to be found in regional lymph nodes in cases of long standing basal cell carcinoma, and it is probable that some of these tumors assume characteristics of the squamous cell type. Still others may be of a mixed or squamo-basal type at onset. Microscopically the basal cell carcinoma is recognized by the thick cords or sheets of cells deeply staining with hematoxylin often having a columnar or cuboidal arrangement of the peripheral cells. Frequently there is infiltration of the underlying corium by lymphocytic cells. Many differing types of basal cell carcinoma have been described. Krompecher lists six. Histologically the basal cell lesions should respond well to irradiation therapy for they are composed of rather undifferentiated cells of the germinative layer. For the most part they do respond well and if the involvement is not too extensive, the cure rate should be well above 90 per cent in this type of lesion.

Squamous cell carcinoma may develop anywhere on the body's integument. It is a more malignant process than the basal cell type because it spreads through lymphatic channels as well as being locally invasive. Grossly the lesion may vary from a tiny scaling patch to a large fungating or ulcerating sore. Exposed parts of the body are sites of predilection. Microscopically the cells are more differentiated than basal cell carcinoma, are less deeply staining, and show a tendency to keratinize and form epithelial pearls. As a result of this greater degree of differentiation these lesions are somewhat more radioresistant than the basal cell variety. The site of the original lesion affects the prognosis. Those on the hands and feet have a bad reputation. Squamous cell carcinoma of the skin of the neck is readily curable but a wide zone of normal skin must be included in the treatment area because spread through the local lymph channels is greater in these lesions than in any other type.

The importance of making an accurate diagnosis cannot be overemphasized. We must know what the lesion is before it can be efficiently treated. The matter of making diagnosis boils down to one word—biopsy. The procedure is simple, quick, and innocuous. Contrary to the belief of some it does not tend to disseminate the cancer. Explain the necessity of the procedure to the patient but avoid the use of the word "cut." Say rather, "We must take a small piece of tissue for microscopic examination." Very few will refuse. With procaine infiltrated into the area excise a wedge from the actively growing edge of the lesion, not from the necrotic or crusted central portion. Include some of the normal appearing periphery. Unless bleeding is unusually active no suture is required. Inform the pathologist of the site and the character of the lesion. Repeat the biopsy if there is any question of the diagnosis.

Provided with microscopic proof that a lesion is malignant one is armed with the courage to prosecute a sufficiently wide excision or deep cauterization or to carry the irradiation to a cancerocidal dose. Without such backing one is more apt to temporize or to give the lesion ineffective or insufficient treatment.

Having established the tissue diagnosis, plan the treatment. I do not treat precancerous lesions, moles, or melanomata with any form of irradiation. Cautery, fulguration, or excision are adequate for the first two and radical excision is necessary for the latter. Irradiation is reserved for proved basal and squamous carcinomata. I do not wish to talk about technical aspects of irradiation but should like to mention a few pertinent points. There is no such thing as a "little x-ray treatment" in attacking skin malignancies. Many patients are still referred in however with such a request. Too litle or too prolonged irradiation is worse than no treatment. If given in a single exposure, 3200 roentgens to the base of the lesion is considered to be a carcinomacidal dose. Fractionation of the treatment, that is dividing it into two or more exposures, necessitates increasing the total dose. The referring physician and the patient should both be informed of the expected skin reaction from the treatment. X-rays produce damaging effects on all tissues and cells. Some cancer cells are more susceptible to the ionizing actions of the x-rays than the cells of the normal skin and have less power of recovery than normal cells. This is the sole reason for irradiation treatment of skin cancer. Sometimes this difference in susceptibility is small and as a result the treatment must be carried to a point where a rather severe damage to the bordering normal tissue is produced. An adequately treated case will develop an ugly oozing, red, raw sore in the treated area appearing two to three weeks following the treatments. If not informed of what to expect, the patient may become unduly alarmed and his local physician may tell him he has an x-ray burn. True enough he has, but it is a therapeutic burn and will usually heal smoothly in another month. Much unnecessary worry and hard feeling can be avoided by referring to the epidermite not as a burn but as an expected x-ray reaction.

Biopsy is again of paramount importance in apparent recurrent lesions. It is the only method which will tell us whether we are dealing with a persistent neoplastic ulcer or chronic irradiation necrosis. Recurrent lesions following previous inadequate irradiation give us trouble, particularly those following treatment with radium where the dose was specified only in mg. hours and where it is difficult to estimate the actual dose in gamma roentgens. It is always futile to attempt to control a recurrent case by administering a smaller dose than originally was used. The growth is undoubtedly a relatively radioresistant one and to effect a cure a considerably larger dose must be given. We see most recurrences in cases previously treated with radium. The surrounding skin is often atrophic, avascular, and scarred. These lesions respond poorly to irradiation and are probably best treated by excision and skin grafting. Unless radium is carefully placed in prescribed patterns in treating skin lesions, the gamma roentgen dosage to the tumor tissue is exceedingly non-homogeneous and parts of the tumor may not receive a cancerocidal dose. For this reason I find it more expedient to use x-irradiation in treatment of accessible skin lesions; the dosage is more homogeneous and surrounding areas can be more easily shielded. This is especially true in lesions of the eyelids. The eyelids can be effectively shielded from x-rays by leaded plastic cups placed over the cornea. There is no effective shielding, however, for the gamma rays from radium and danger of an irradiation cataract is greater if radium is employed in such lesions.

It is not to be inferred that other methods may not be used in treating cutaneous cancer. Undoubtedly an equal number of cures might be obtained if the growth is destroyed by excision or thorough cautery. Many attempts with such methods are unsucessful because of failure to include a safe margin of the normal surrounding skin. Lesions of the neck are especially prone to recur unless a wide margin of safety is allowed. I include at least 1.5 cm. margin of normal skin when treating such lesions by irradiation. Fulguration, or cauterization with high frequency spark, if not done properly is an unsafe method. One is apt to think that the spark seen under the surface has devitalized all tumor cells only to have the lesion recur later. The charred crust must be removed and successive layers fulgurated until an ample depth of tissue has been destroyed. It is difficult to anesthetize the skin completely to heat by infiltration of procaine, which is another reason the fulguration is often stopped short of the desired point.

In closing I should like to present a plan for management of cutaneous malignancies:

1. Make a diagnosis—preferably a tissue diagnosis by means of a biopsy.

2. Whatever the method of treatment selected, let it be thorough—include sufficient depth and breadth to encompass all tumor tissue.

I believe that by following these two simple rules the percentage of cures of skin malignancies can be significantly increased.

Bibliography

1. Bell, E. T.: Textbook of Pathology. Sixth Edition. Philadelphia: Lea & Febiger, 1947.
2. Foot, N. C.: Pathology in Surgery. Philadelphia: J. B. Lippincott Co., 1945.
3. Sutton, R. L., and Sutton, R. L., Jr.: Diseases of the Skin. Tenth Edition. St. Louis: C. V. Mosby Co., 1939.

SERVICE-CONNECTED DISABILITY CARE

A report for September has just been released showing the extent of treatment in VA hospitals of service-connected disabilities. Of 102,613 veterans hospitalized by VA during that month, 35 per cent were under treatment of service-connected illness or injury. The report showed that 25 per cent were pensioners having permanent and total disabilities; 11 per cent had service-connected disabilities but were hospitalized for other conditions; 8 per cent had no service-connected disability, under treatment for tuberculosis or psychosis; 10 per cent the same as foregoing but under treatment for non-chronic conditions; remaining 11 per cent for miscellaneous conditions.

—*News Letter, M.S.M.A.*, Nov. 14, 1952.

EMPHYSEMA OF THE LEG FOLLOWING PERFORATION OF THE RECTUM

Report of Case

WILLIAM C. BERNSTEIN, M.D., C. HARRY GHENT, M.D., and CHARLES E. REA, M.D.
Saint Paul, Minnesota

SERIOUS complications following perforations of the rectum have been reported by many authors. Prior to World War II these complications were accompanied by high mortality rates. A report in the Military Surgeon of 1933 stated that perforating wounds of the rectum carried a mortality rate of 45.19 per cent. With the advent of antibiotics and more radical and judicious surgical measures most of the cases of perforation of the rectum which are diagnosed within a reasonable period of time after the accident can be saved.

Peritonitis following perforation of the peritoneal cavity is without question the most common serious complication of rectal perforation. Impalement of the rectum and gunshot wounds most frequently produce this complication. Perforation into the bladder or urethra, injuries to the blood vessels, and abscesses of the perirectal spaces are among the other serious complications of this condition.

We wish at this time to present a case of massive emphysema of the entire leg which occurred following a rectal perforation and abscess of the ischiorectal fossa.

Case Report

Mrs. G. A., aged forty-nine, was admitted to Ancker Hospital on May 7, 1952. She stated that she had fallen from the top of a chair six days previously and that she had struck her perineum against the edge of the chair during the fall. She also stated that she had injured her left hip and right arm during the fall. The pain in the left hip was very severe immediately after the injury and she was taken to a private hospital. X-ray examination showed no evidence of fracture. During the subsequent four days she had severe pelvic, sacral and left hip pain. She also had pain in the lower abdomen. Her temperature during this period ran between 101 and 102° F. On the fifth day after the injury the pain in the left leg was very severe and extended down to the ankle. The temperature at that time was 102° F. There was a small amount of vaginal bleeding but rectal bleeding was not noticed. On the sixth day after the injury an x-ray of the left leg revealed collections of gas along the fascial planes from the upper thigh to the ankle. A tentative diagnosis of gas gangrene was made and the patient was transferred to the contagious ward of Ancker Hospital. The radiologist* who interpreted the x-ray plates did not feel that the case was one of gas gangrene since the gas did not infiltrate a given area in a homogeneous manner but was localized along the fascial planes.

On admission to Ancker Hospital the pelvis and left leg were again x-rayed and at this time an area of gas was seen in the pelvis in an area which seemed to be lateral to the lumen of the rectum. An increased amount of gas was seen in the thigh, popliteal space and calf. The temperature was 101.8° F. Abdominal examination revealed nothing of note. There was no tenderness, rigidity, or masses in the region. Examination of the perineum revealed marked tenderness to the left of the anus. There were no visible lacerations of the genitalia, anus or perineum. There was marked deep pelvic tenderness which prevented an extensive bimanual examination. Marked pain was elicited when the finger was inserted into the anal canal and lower rectum. Examination of the extremities revealed a brownish discoloration over the medial surface of the upper part of the left calf. Extreme tenderness was noted on the upper and medial surfaces of the calf, over the popliteal area and the lower and posterior part of the thigh. Definite crepitation could not be felt. There were no cutaneous blebs present. No mousy or other characteristic odor suggestive of gas gangrene could be detected. An x-ray examination was again made and the plates were compared with those taken previously. The amount of gas along the fascial planes of the thigh and leg was increased over the previous x-ray examination. No evidence of fracture could be made out. Laboratory studies revealed a leukocyte count of 19,300 but were normal in other respects. The remainder of the physical examination was negative.

Immediately after admission the patient was started on 50 cc. of polyvalent antitoxin in 500 cc. of 10 per cent dextrose intravenously. Therapeutic doses of penicillin and streptomycin were given. On the evening of admission it was felt that the amount of gas in the leg was increasing. The patient was taken to the operating room where five incisions were made in the left leg between the ankle and the hip releasing the gas which was under marked pressure. These wounds were packed open. Smears and cultures taken at the time of surgery revealed the presence of E. Coli.

Proctoscopic examination was performed on the day after admission to the hospital. This revealed the presence of a perforating wound of the anterior wall of the rectum about 2 cm. above the anorectal line.

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*Dr. B. A. Hall, St. John's Hospital, St. Paul, Minnesota.

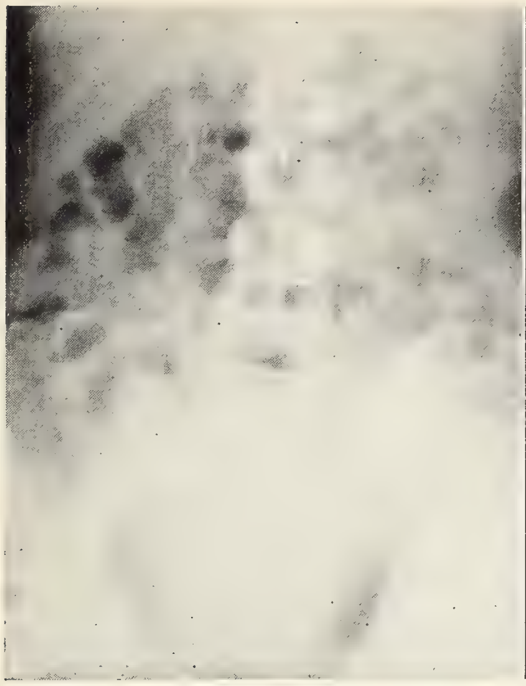

Fig. 1. Large air filled cavity lateral to mid-line of lower pelvis.

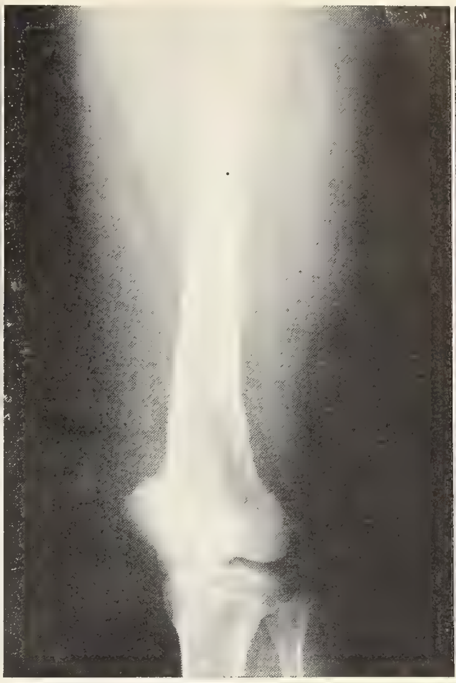

Fig. 2. Gas seen along the fascial planes of thigh.

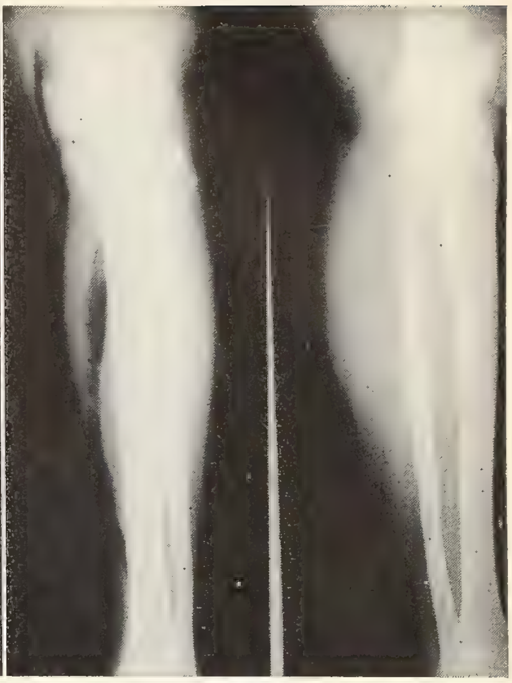

Fig. 3. Large amounts of gas between the muscles of the calf.

The edges of the perforation were necrotic and a large amount of very foul smelling pus could be seen coming from the area beyond the perforation. There was a considerable amount of pus in the rectum. The bowel was visualized to the 20 cm. level and no other abnormality was seen. It was then decided that we were dealing with a perirectal abscess secondary to a rectal perforation with extension of gas from the abscess into the left leg.

On the afternoon of May 9, 1952, the patient was again taken to the operating room where the abdomen was opened and a thorough exploration was performed. No evidence of perforation, peritonitis or abscess could be found. There was some induration along the lateral border of the rectum. A sigmoid colostomy was performed and the abdomen was closed. The patient was then placed in lithotomy position and the left ischiorectal space was opened widely. A large amount of foul smelling pus was encountered in this area.

Following these procedures the patient's condition improved rapidly. The colostomy was opened and the nasal suction tube was removed within twenty-four hours after surgery. On the sixth postoperative day the patient developed signs of thrombophlebitis in her left leg. Improvement followed treatment with anticoagulants and heat. The patient was discharged from the hospital in good condition on the twenty-first postoperative day.

Much speculation was indulged in by the various physicians who were interested in the case as to the mechanics of the spread of gas from the left ischiorectal fossa to the fascial planes of the left leg. After consultation with several authorities on anatomy and review of anatomical charts and specimens, it appears that the best possibility lies in the suggestion that the obturator membrane was torn during the fall. Since the first symptoms were those of severe pain in the left hip and deep pelvis, it is logical to assume that in the absence of a fracture that a tearing of the obturator membrane could produce such pain. When one examines the pelvic region on a skeleton or cadaver one sees the obturator membrane as the only real barrier between the ischiorectal fossa and the leg. In the absence of a more plausible theory we are quite satisfied with the above explanation of the mechanics of the findings in this case. An extensive review of the literature does not reveal the report of a similar case, and we feel certain that this is the first case of emphysema of the leg following perforation of the rectum to be reported.

Read at the annual meeting of the Southern Minnesota Medical Association, Austin, Minnesota, September 8, 1952.

TUBERCULOSIS AMONG DIABETICS

Tuberculosis among diabetics is a special, serious, and integral part of the whole problem of eradicating tuberculosis. The importance of early isolation of the patient with positive sputum should be stressed, as well as prompt hospitalization and institution of appropriate therapy. Reeducating the patient so that he will practice good living habits will do much to prevent future relapses.—David A. Cooper, M.D., and Katharine Boucot, M.D., *The American Journal of Nursing*, November, 1952.

President's Letter

NO ROOM

With the approach of the Christmas holiday, many of us will promise himself that this year it will be different. This year we vow that our shopping will be completed early. We vow that Christmas cards will be signed, sealed and ready for mailing so that all that we need do is drop them into the mail box at the proper time. We vow to put into effect long standing plans for a spectacular display on the front lawn. We will probably vow again not to go all-out on gifts, in the vain effort to reduce the shock of January bills.

In all of our vowing about the tangible aspects of the great day, we seem to leave no room for some of the intangible ones upon which the holiday is based. We often leave no room for thought or meditation on the real spirit of Christmas, the emblem of peace and good will toward all men. In a nation whose Declaration of Independence and Constitution are founded upon the concept of divine law, we need no reminder that Christmas is the birthday of Christ and not merely the time for the annual all night world-wide sleigh ride of Santa Claus.

This is not to state that we should abolish all of our traditional yuletide commemorations. It is only to urge that through the tinsel and holly, the candy and nuts, the popcorn balls and ornaments, the wrappings and gifts, should shine the greater radiance of the true spirit of Christmas.

Imbued with that spirit we will not give the same answer that was given to Mary and Joseph when they sought shelter. We will not deny that there is room in the inn for Christ. Let us prepare that room during the busy holiday season, a place in our hearts for the guest of honor.

May each of you enjoy a truly Merry Christmas and a New Year filled with happiness.

Roger L J Kennedy

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

CHANGE IN WASHINGTON

IN OUR representative form of government, one political party is likely to stay in power until conditions become so bad that the majority of citizens want a change. The change to another political party constitutes a safety valve and a substitute for armed rebellion.

The recent election constituted a repudiation, in no uncertain terms, of the Truman administration which was doubtless the result of numerous factors. How much the support given by many physicians to the Republican party had to do with the outcome is perhaps open to a difference of opinion. Physicians, however, as individuals and such groups as the National Professional Committee under the leadership of Dr. E. L. Henderson of Louisville, were very active in their opposition to the present administration and undoubtedly exerted a considerable influence.

When we consider how persistently Truman and his henchmen have tried to foist compulsory national health insurance on the people of this country, it is little wonder that determined opposition was undertaken by the medical profession. This attempt on the part of the present administration to take a further step towards socialism by placing the medical profession in the employ of the federal government was made in spite of strong indications that the majority of people were opposed to such a step.

We are informed* that in 1947 Senator H. A. Smith, chairman of a Senate Committee holding hearings on national health policy, wrote to the governors of the forty-eight states asking their opinion of the Wagner-Murray-Dingell Bill for federal compulsory health insurance and that not one governor favored the bill. The legislators of a number of the states had memorialized congress in the opposition to the program. Such representative organizations as the American Bar Association, the United States Chamber of Commerce, the American Farm Bureau Federation, the Federation of Women's Clubs and the American Legion have all adopted resolutions against the proposal.

The platforms of the two parties were diametrically opposed on two important issues, i.e., compulsory federal health insurance and federal aid to the medical schools. Eisenhower had come out clearly in opposition to federal compulsory health insurance and the Republican platform stated: "We are opposed to federal compulsory health insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight and debased standards of medical care." Although nothing was said in the Republican platform regarding federal aid to medical schools, Eisenhower had been active before his nomination in raising funds from private sources so that medical schools would not have to be supported by federal funds. He had said: "We must support medical education by private means because, if we don't, it would be the first step towards the socialization of medicine. I am against socialization." On the contrary, the Democratic platform flatly called for federal subsidy of medical education.

How does the AMA stand on national issues?

In the first place, it is opposed to federal compulsory health insurance, of course. It also believes that the support of medical schools is the function of state governments and individuals and that the federal government should not be called upon for funds except in cases in which dire need is demonstrated beyond a doubt, and then help should be limited to "one-time" grants for construction or equipment.

The AMA favors the Reed-Keogh bill, which is at present before Congress, and provides for measures to encourage the creation of pension funds for some 10 million self-employed persons including physicians to equalize pension provisions already in effect for the benefit of corporations and employes.

The AMA also favors the appropriation of federal funds for medical research and the provisions of the Hill-Burton Act for the encouragement of hospital construction.

What will be the new administration's attitude

**Christian Science Monitor,* November, October 27, 1952.

on the care of veterans for non-service connected disabilities, which has proven such a thorn in the flesh for the medical profession?

The new President will doubtlessly be committed to the principles of social security and he has expressed himself as in favor of improving and extending its provisions. Commitments have been made and those for old age and unemployment will have to be carried out. What will his attitude be toward the present dishonest disposition of tax funds for purposes other than those for which they were collected?

When it comes to balancing the national budget, however, that will lie in the lap of Congress. Whether Congress will be able to effect substantial economies will depend in the last analysis, as Congressman Judd has clearly pointed out, on the attitude of the constituents at home.

COST OF ANTIBIOTICS

ONE WAY in which the medical profession can assist in lowering the cost of medical care is in the prescribing of antibiotics—the newer wide-range ones, in particular. Too often the cost of drugs is given little or no consideration by the physician.

At the onset of the manufacture of certain drugs, the cost of manufacture is of necessity high. With larger scale production, price reductions occur if the manufacture and sale of the drug is open to competition. This was illustrated in the case of penicillin. Our attention was called recently to a bill rendered the Blue Shield only a few years ago which included a charge of $92.00 for one day's medication of 4 million units of penicillin for one patient suffering from pneumonia. Aside from the question of the need for any such dose, the cost today would be about a tenth of the figure mentioned.

An interesting editorial on the subject of the antibiotics* which appeared in a recent issue of the *New England Medical Journal* is instructive. Large-scale production and keen competition have resulted in repeated cuts in the price of penicillin. Not so with the so-called wide-range antibiotics. The manufacture of aureomycin, terramycin and chloramphenical (Chloromycetin) is controlled by patent rights assigned to individual manufacturers. Inasmuch as they cover much the same field of infection, the competitive factor will presumably result in price lowering as production increases.

The British, forced of necessity to conserve the export of American dollars for the purchase of American-made antibiotics, found in a small series of cases of pneumococcic pneumonia that the sulfas and domestically produced penicillin were just as effective as the expensive American-made antibiotics. In our own country, several series of bacterial pneumonia have been reported with no difference in effectiveness between penicillin and the newer wide-range antibiotics. While the small number of cases reported is perhaps not enough to be conclusive, the results are strongly suggestive. This applies to the pneumococcic and bacterial pneumonias. Where there is suspicion that the patient is suffering from a so-called atypical or virus pneumonia, there may be good reason to select an antibiotic other than penicillin. In the editorial mentioned, it is interesting to note that the use of 1 gram a day of aureomycin or chloramphenicol seemed effective in eighty-one of the 100 cases reported from a large hospital in Seattle, Washington, which was about one-fifth the amount used in the British investigation.

A further means of effecting an economy in time and effort for the hospital nurse and added comfort for the patient is the adoption of a single injection in the twenty-four hours of a high concentration of penicillin. This dose has been shown to produce therapeutic blood levels lasting the entire twenty-four hours. The injection of penicillin every four hours to a sick patient should have been abandoned long ago.

Our thought is that, whereas the wide-range antibiotics are indicated for certain diseases, their use is extravagant for infections just as well controlled by penicillin or—aspirin.

MINNESOTA MEDICAL FOUNDATION

AT THE annual meeting of the Minnesota Medical Foundation held at the University of Minnesota on October 2, 1952, thirteen scholarships of $500 each were presented to undergraduates in the medical school. The recipients were Charles Gamble, Barbara Hanson Subak, Karl Palmer, Bertram Woolfrey, Gene E. Meger, Robert Radke and Maynard Jacobson, members of the sophomore and junior classes. Six additional scholarships, made available by the efforts of Dr.

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*Editorial: Choice of therapy for pneumonia. New England J. Med., 247:736 (Nov. 6) 1952.

Donald J. Cowling to graduates of state colleges, were presented to the following members of the freshman class: Duane Flagstad, Eugene W. Hanson, Harlis Hanson, Gerald Kuss, Curtis Stolee and Ernest Swanson.

The presentation was followed by an address by Dr. William S. Middleton, Dean of the University of Wisconsin Medical School, on "The Springs of Medical Strength."

The dinner meeting held at the Campus Club was presided over by Dr. Owen Wangensteen and greetings were brought by Dr. Horns in the absence of Dr. Diehl.

In the absence of Dr. Vernon Smith, chairman of the Membership Committee, Dr. Francis W. Lynch reported a total membership of 1,035.

Dr. Moses Barron, Minneapolis, Dr. Ray Hedin, Red Wing, and Dr. Herman E. Drill, Hopkins, were elected to the Board of Trustees.

The meeting was concluded with a memorable impromptu talk by Dr. Cowling on the American system of education and the problems that confront medical education in particular.

EPIDEMIC RINGWORM OF THE SCALP

IN VIEW of the fact that recently there has been a serious outbreak of epidemic ringworm of the scalp in the Grand Forks, North Dakota, area which has spread to East Grand Forks, Minnesota, we are publishing in this issue a release on the subject received from the Minnesota Department of Health.

Epidemic ringworm of the scalp is a contagious disease and reportable in Minnesota. Minnesota suffered from quite a serious epidemic in 1945, when the disease was first made reportable. At that time some 805 cases were recorded, for the most part in Saint Paul. Means to combat the infection were successful so that few cases have been reported in recent years. However, up to November 18 of this year, some seventy-one cases have been reported, forty of them in East Grand Forks school children.

The physicians of the state should be on the lookout for this highly contagious form of ringworm of the scalp so that needed quarantine measures can be instituted. An accurate diagnosis is impossible without the use of a Wood lamp and laboratory culture. Infected hair may be sent to the State Board of Health on the University Campus for culture and diagnosis.

The treatment of the disease is notoriously unsatisfactory. Hence, emphasis is placed on prevention of spread by local Health Officers.

EPIDEMIC RINGWORM OF THE SCALP

(*Tinea capitis* caused by *Microsporon audouini)*

History.—Epidemic ringworm of the scalp has been recognized for years, and sporadic cases have occurred in many areas. The disease became epidemic in Europe and the British Isles after the first World War. Shortly after 1940, the condition reached serious proportions on the East Coast of the United States and gradually spread westward. It was first called to the attention of the Minnesota State Board of Health by Twin City dermatologists, late in 1944. Epidemic ringworm of the scalp was made reportable in Minnesota in March, 1945.

Characteristics.—The outstanding feature of this infection is its insidiousness. Epidemic ringworm due to *Microsporon audouini,* may exist for months before it is recognizable. Those accustomed to dealing in the past with less serious forms of ringworm of the scalp may be woefully led astray in trying to apply past experience to this condition. Except in rare instances, *do not* expect to find marked inflammation, induration, bogginess and pustulation such as may occur in other forms of ringworm commonly seen in children. Epidemic ringworm, due to *M. audouini,* occurs much more commonly in boys and the sites of predilection are the occipital area, around the base of the head, and the sideburn area. It is extremely rare after puberty. Lesions usually are single, to begin with, and may vary from a single, infected hair up to large patches with involvement of most of the scalp. The scalp in the involved area usually exhibits a fine scaling with pin-head sized adherent scales, the so-called "cigaret-ash" scale. Inflammation is not a feature until the infection reaches an advanced stage and usually is never marked. The hair in the infected areas gradually loses luster, becomes brittle and finally breaks off or falls out. In neglected cases, permanent baldness may result.

Transmission.—Epidemic ringworm is spread through direct contact, child to child, or through the medium of such contaminated objects as caps, combs, towels, backs of theater seats, barber tools, et cetera. This mode of spread contrasts with that of the non-epidemic scalp ringworm which is contracted usually from contact with an infected animal such as a dog, cat or calf.

Diagnosis.—In early cases, diagnosis is impossible if simple inspection alone is relied upon. The greatest single aid in detection of early cases is by examination under filtered ultraviolet light, the so-called "black light," using a Wood lamp. Under this light, infected hairs glow or fluoresce with a blue-green light. With experience the characteristic fluorescence seen in ringworm is easily distinguished. This procedure, however, is not diagnostic, as both the epidemic and non-epidemic types of ringworm may show fluorescence under the Wood light. For positive diagnosis, recourse must be made to laboratory examination. Fluorescent hairs should be plucked and submitted for examination. By staining and cultural characteristics and microscopic appearance, the type of ringworm can be determined. When fluorescence is present, failure to find the organisms in a single culture should not be taken as proof of absence of infection. Laboratory service is available to physicians through the Minnesota Department of Health, University Campus, Minneapolis. Special outfits are provided for the submission of specimens.

Treatment.—The usual treatment is to shave the infected area or remove the infected hairs with tweezers if they are few in number. Fungicides are then applied locally. There have been reports of good results following the use of ointments containing undecylenic acid. The infected area is marked out and an area including one inch of surrounding hair is shaved. If extensive, the whole scalp may be shaved. The fungicide is applied according to specific directions and rubbed in well twice a day. Patients should be examined under the filtered ultraviolet light at weekly intervals.

In resistant cases, x-ray epilation may be necessary. Such epilation should be done only by an experienced operator. Epilation with thallium acetate should not be attempted, as the effective dose is too close to the toxic dose. It should also be pointed out that there have been several reports of neurotoxic reaction following the use of "Asterol." If this material is used, the manufacturer's directions should be closely observed, especially in very young children. Hormone therapy has little value.

Prevention.—Prevention is essentially avoidance of contact either direct or indirect with an infected child. Children should be warned not to exchange caps, combs, towels, et cetera. Frequent shampooing is advisable, especially after visits to the barber or theater. Infected children should wear a light stocking cap or other head covering which should be washed daily. They should be excluded from school while there is any danger of transmission of the infection to others. When a case is found, all children in the same family should be examined and re-examined at intervals of about two weeks.

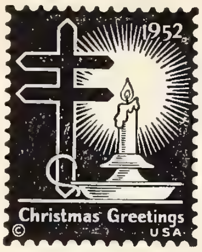
Examination or treatment of the condition should not be attempted without the use of a Wood light.

Cases of epidemic ringworm are required by state health regulation to be reported to the local health officer in the same manner as other reportable diseases *(See* Regulation 301).

November 17, 1952.

Because the control of tuberculosis is a universal problem, found in all areas everywhere, the program must be shared by all agencies working together, official and voluntary. This means that the disease must be found, isolated, and treated and that efforts and methods for control must transcend the boundaries of a single state, local area, state or nation. The cost of fighting tuberculosis is very great and the problems it produces are many and complex. . . . Efforts to control it and eventually to eradicate it require most intensive work on local, state, national and even international levels of action.—Mabel Baird, *Connecticut State Medical Journal,* May, 1952.

Help Fight TB



Buy Christmas Seals

CHRISTMAS SEALS

David T. Smith, M.D., of Durham, N. C., Professor of Bacteriology and Associate Professor of Medicine of Duke University, and former president of the National Tuberculosis Association, sounded a warning note against over-optimism over the declining tuberculosis death rate when he addressed Minnesota Christmas Seal workers in October. The occasion was the annual dinner of the Minnesota Tuberculosis and Health Association. It was held at the Coffman Memorial Union, University of Minnesota.

Dr. Smith said the case rate, and not the death rate should be emphasized. He called attention to the fact that 118,438 new cases of tuberculosis were reported in the United States in 1951, and that 2,208 of them were right here in Minnesota.

The following is an abstract from Dr. Smith's talk:

"Tuberculosis can be eliminated as surely as leprosy was eliminated from Western Europe between 1300 and 1600 A.D. but this cannot be accomplished in one generation. A child acquiring its tuberculous infection at the age of three, as shown by a positive tuberculin test, may not develop clinical tuberculosis until the age of eighty.

"As the final stages of the fight against tuberculosis are reached, the expense of hospitalization and treatment will be materially reduced but the expense of case-finding, including tuberculin testing the entire population and x-raying all positive reactors annually, will be increased.

"Finally, when the number of tuberculin reactors becomes small, the cost of the annual x-ray will be insignificant. A little more investment in case-finding now will save millions of dollars later in the prevention of new clinical cases which require expensive sanatorium treatment.

"The rapid, precipitous decrease in the death rate from tuberculosis since 1947 can be attributed primarily to improved medical and surgical treatment. The death rate can no longer be used as even a rough index of the frequency and importance of this disease. The decrease in death rate has not been accompanied by a corresponding decrease in the rate which new cases are developing. There are reasons for believing that many active cases remain undetected in the population and form a source for new infections.

"The remarkable progress in the control of tuberculosis in Minnesota is the direct result of the active control program and not the spontaneous effect of a rising standard of living or other non-specific factors.

"The control program for the future should be expanded to include a tuberculin test for every individual in the state with an annual x-ray of every positive reactor and an annual tuberculin test for every negative reactor. The money saved in treatment, by detecting the new cases in the incipient rather than the moderately advanced stage of the disease should be more than enough to pay for the increased cost of the expanded case-finding program when once the complete program has been activated."

The forty-sixth Annual Christmas Seal sale opened in Minnesota, November 17. The seal design features the double-barred cross, international insignia of the fight against tuberculosis, and a lighted candle in an old-fashioned holder, symbolizing the light of knowledge spread by the Christmas Seal.

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

BUSINESS GROUP TO PROMOTE MEDICAL CENTERS

On October 30, 1952, the American Federation of Medical Centers announced its beginning as a national non-profit organization formed by businessmen and doctors to "show communities how to provide modern, comprehensive medical care to individuals at a cost of one to two dollars a week."

The American Federation of Medical Centers, Inc., plans to start community medical centers, based on business' methods. According to its recent announcement, "this comprehensive medical care will be provided by a self-contained team of physicians, dentists and nurses and other necessary personnel who will work together as the staff of a community medical center."

Three-Point Program Cited

Formed to work with other organizations in the fields of health and medicine, and to assist in the development of a program for community medical care, the group states that its program is based on three points:

1. The establishment of self-sustained *medical centers* with clinical, hospital, and other necessary facilities for providing modern medical care.
2. The operation in these centers of *efficient group practice,* made possible through selected teams of general practitioners, specialists and other personnel.
3. The creation of a system of *voluntary prepayment for medical care* in which each individual will receive preventive and curative medicine.

The group's report places emphasis on the need for medicine to adopt the methods of industry and business in order to provide more efficient medical care. It states that medicine must "become a self-respecting business which pays its own way."

Explaining further, the report says:

> "Throughout the period of its great progress, medicine has been put in the position of seeking money to meet its ever-expanding, ever-recurring needs for facilities and support—particularly for education and research. Industry, either directly or indirectly, has been supplying much of that money by means of grants and foundations. It has been making contributions to hospital drives, costly plans for plant medicine and in other ways.
>
> "Yet industry has paid too little attention to the medical care this money buys—the kind of facilities provided, or their location with relation to needs. Medicine, on the other hand, has had to do much with little—spreading its pennies as emergency or expediency dictated."

"Neither industry nor medicine has received the return it should have had for its investment," the report continued. "To remedy this inequity, medicine itself must become a self-respecting business which pays its own way."

Advocates Group Practice

In presenting its plea for public support of the plan, the announcement states that the individual doctor, conscientiously striving to provide adequate medical care, is being swamped by the forces of America's highly industrialized and organized society. After stating that the doctor is usually forced to work alone, the report goes on: "By associating himself with other doctors in team practice, with better facilities, and, in many cases, relief from financial problems, the doctor will, like specialists in all other fields, produce a superior product—better medical care—as a member of a team. Every qualified physician and dentist will have an opportunity to join the group."

Personnel of the American Federation of Medical Centers include Wendell W. Anderson, chairman of the Board, and Dr. Edgar H. Norris, its founder, a physician formerly from Minnesota. Mr. Anderson and Dr. Norris, in announcing the initiation of the plan, state that the group "is convinced that medicine's real weakness is not in the quality of medical care which is superb in some areas, but in the uneven distribution of such care nationally." The announcement followed a six-year study of the national problem of medical care.

As far as doctors of Minnesota are concerned, this new project has not been presented to the Minnesota State Medical Association, and the Association has not been made familiar with the details of the set-up and operation, nor with what the definite purpose is. It is believed that medicine should be very cautious in accepting this proposal until it has been thoroughly studied.

SENATE COMMITTEE PLANS VA HEARING

The Senate Government Operations Committee, chairmaned by John L. McClellan of Arkansas, will call a hearing in mid-January, 1953, on the management survey report of the Veterans Administration. This report has not been made public. It was completed last spring by a private firm and amounted to a $605,000 complete investigation on VA operations, including medical activities. The firm's recommendations have been studied by various VA officials.

The committee staff, upon adjournment of Congress last July, began studies into operations of the Veterans Administration, according to a recent issue of *Capitol Clinic*. This study emphasized hospital construction, utilization of hospital facilities and medical personnel and on the possibilities of improving the administration of the veteran's insurance program.

MEDICAL SCHOOLS SET NEW RECORD ENROLLMENT

More and better financial support and an unprecedented increase in teaching facilities since World War II have combined to bring facilities for medical education in the United States up to an all-time high. This analysis was contained in the summary of a report on medical education in the United States and Canada by the Council on Medical Education and Hospitals of the American Medical Association.

The report showed that enrollment records were broken for the fourth consecutive time in the seventy-two medical and seven basic science schools in this country. In the 1951-52 academic year, there were 27,076 medical students enrolled in United States schools as compared with 26,186 in the preceding year. This is a 3.4 per cent increase. The report states:

"In the five years before World War II, there was an annual average enrollment of 21,514 students. The present total represents an increase of more than 25 per cent. The five-year pre-war average of freshmen students was about 5,800. The latest figure is an increase of about 28 per cent."

New Peacetime Record Set

There were 6,080 students graduated this year, the report noted—a record number for a regular schedule. The only previous surpassing record was in 1947 when the termination of the accelerated wartime schedule resulted in graduation of more than one class by several schools. The total for that year was 6,135 graduates; estimated students graduating next year is 6,500.

Expansion Funds Noted

Since the end of World War II, the report stated, more than $300,000,000 has been spent in expansion of medical school facilities. In addition, some thirteen projects designed to found new schools or expand two-year schools into four-year schools, are now under way. Total operating expenditures, including research, increased in the past year from $109,000,000 to $120,000,000.

Criticism Cited

In commenting on the over-all expansion of medical school facilities, the report said:

"In the period after the war, medical schools and medical educators were subjected at times to severe and unfair criticism for not expanding their facilities more rapidly or extensively. It is to the credit of the medical schools that they insisted that, if proper standards were to be maintained, increases in enrollments would have to be accompanied by the provision of additional capital facilities and by additional operating funds."

The report also gave credit to the American public for increasing its investment in medical education: "It is equally to the credit of the American public that it was willing to increase its investment in medical education so that additional students could be accommodated without lowering the high standards of medical education that several generations had striven to create in this country.

"Through increased legislative appropriations, federal grants in aid, gifts for endowment and current expenses, alumni funds, and, more recently, the efforts of the National Fund for Medical Education and the American Medical Education Foundation, the funds available to the medical schools have been more than doubled since the end of World War II . . . medical education is better supported today than at any time in its history and American medical schools as a group are conducting programs of education and research that far surpass both qualitatively and quantitatively any of their previous efforts."

Minnesota Academy of Medicine

Meeting of March 12, 1952

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, March 12, 1952. Dinner was served at 7 p.m. and the meeting was called to order at 8:10 p.m. by the President, Dr. O. H. Wangensteen.

There were forty-three members and one guest present.

Minutes of the February meeting were read and approved.

There being no business to come before the Academy, the scientific program followed.

Dr. Roy E. Swanson, of Minneapolis, read his inaugural thesis.

THE ANTEPARTUM DIAGNOSIS OF ANENCEPHALIC MONSTER

A Report of Six Cases With Induction of Labor

ROY E. SWANSON, Ph.D., M.D.
Minneapolis, Minnesota

Anencephalus is the most common of single monsters. Its occurrence is a tragedy to the parents and is most embarrassing to the obstetrician when its presence is not suspected for such a severe abnormality precludes its ability to survive and its early recognition cannot be too heavily stressed. The termination of the pregnancy is obstetrically sound and psychologically correct.

The etiology of fetal monstrosity is still in dispute. Both the germinal and unfavorable environment theories have advocates. Recent work on the administration of a massive dose of Cortisone to pregnant mice in the early days of pregnancy has shown a tremendous increase in fetal abnormality, especially hare lip. The high incidence of abortions in mothers bearing monsters, may be included in either theory. Monsters are not uncommon in placenta previa where environment with a faulty placenta-fetus relationship may be the factor. Adair's study of fetal malformations in twins, with the constant association of hydramnios with the monster twin, is certainly suggestive of the fetal origin of this condition. Goldmaier found nine out of twenty-two monsters hereditary. Murphy of the University of Pennsylvania in his monograph, "Congenital Malformations," inclines to the germinal theory. He states that in families already possessing a malformed child, the birth of a subsequent malformed child takes place with a frequency which is in the neighborhood of 25 times greater than that of the general population. He also states, "In families containing two malformed siblings, the subsequent defective child is more likely to be born later in the family than it is to be the next child in the order of birth to the first defective sibling; and the defect in both was identical in 50 per cent of the instances." Reports in the literature of two or three consecutive defective siblings are not frequent.

The incidence of monstrosity varies with age, parity and heredity. Mall states, that seven pregnancies out of every hundred give pathologic ova of which but one-third give well formed embryonic monsters, or 2 per cent of all pregnancies. The number of monsters going to term is said to be 0.6 per cent. It seems only kind, that whenever parents have had a monster born to them, they should be told the statistical facts: Murphy's reassuring statement that the sibling, following the monster, is unlikely to be defective, but that their general risk in subsequent pregnancies is twenty-five times greater than in the general population. They should also be told that about 75 per cent of monster pregnancies are aborted spontaneously and should they wish to take this risk they can be promised careful watching and early diagnosis. The termination of such a pregnancy can be promised.

The diagnosis of anencephalic monster is based on: (1) absence of the fetal head, (2) inability to determine accurately the presenting part, if it is a vertex, (3) abnormality of the presenting fetal head, (4) acute hydramnios, (5) convulsive fetal intrauterine movements from pressure on the foramen magnum, (6) peculiar changes in the fetal heart rate, (7) occasionally very sluggish motion, (8) x-ray findings.

Careful search of the literature reveals that this condition is too infrequently diagnosed before delivery, before term or before the rupture of membranes. Case in 1916 claims to have made the first x-ray diagnosis of anencephaly antepartum. Hartung's report antedates his, by several months. Since then many x-ray diagnoses have been made.

Once the diagnosis of anencephalic monster is made, pregnancy should be terminated at once by conservative means if possible, or by radical procedures depending on the age of the mother, the number of pregnancies, the presence of other abnormal siblings and the wishes and religion of the parents. In the Catholic Moral Doctrine termination is permitted at the age of viability.

I wish to report six cases of anencephalic monstrosity with the clinical dignosis made antepartum, confirmed by x-ray. Five of the pregnancies were terminated by rupture of the mebranes and the sixth by cesarian hysterectomy. All six monsters were female. All mothers recovered nicely.

Case 1.—Mrs. L, gravida I, para O, thirty-six weeks, aged twenty-six. Routine prenatal case except for last two and one-half months while at the lake in northern Minnesota. On her return on September 22, 1941, office diagnosis of hydramnios with monster made—confirmed by x-ray. Membranes artificially ruptured at hospital September 23. A stillborn female monster was delivered eight hours later. Autopsy. Serology negative. Laboratory negative.

Case 2.—Mrs. B, gravida I, para O, thirty-two weeks, aged twenty-five. Sudden hydramnios. X-ray showed anencephalic monster. Membranes ruptured. A female monster was delivered by the breech four hours and forty minutes later. Recovery. Serology negative.

Case 3.—Mrs. N, aged twenty-eight, Gravida IV para III, twenty-eight weeks. Recent hydramnios—breech presenting x-ray diagnosis of anencephalic monster. Labor induced by rupture of membranes. Female delivered by the breech in one hour and thirty-seven minutes. Two living normal children; one stillborn (previous) (?)

Case 4.—Mrs. S, aged forty, Gravida II, para I, twenty-eight weeks. Patient was seen in consultation in hospital for abdominal tumor and intermittent bowel obstruction. Found to be pregnant four months. About two months later acute hydramnios. X-ray confirmed diagnosis of anencephalic monster. Terminated by cesarean hysterectomy and release of intestinal band producing partial bowel obstruction. Female.

Case 5.—Mrs. H., twenty-four years old, Gravida II, para I, twenty-eight weeks pregnant. Recent hydamnios. Diagnosis of anencephalic monster made January 20, 1948. Confirmed by x-ray January 24, 1948. Labor induced January 24, 1948, by rupture of membranes. Three-hour labor. Female.

Case 6.—Mrs. H, twenty-one years old, Gravida I, para O, EDC July 15, twenty-eight weeks. Sudden increase in size of abdomen this week. No motion for four days. On April 22 diagnosis of anencephalic monster was confirmed by x-ray. Labor was induced April 22. Female monster.

Summary

The diagnostic problem in the early recognition of anencephalus is a matter of attention to detail and good prenatal care. Hydramnios is a most consistent finding and may appear very suddenly. Examination of the presenting part if it is the head is instructive. X-ray is conclusive. Termination of pregnancy is indicated. In order that a monster pregnancy be recognized and promptly terminated, the points in its recognition should be kept constantly in mind and x-ray studies when there is the slightest doubt.

Discussion

Dr. L. G. Rigler (Minneapolis): Dr. Swanson has called attention to a finding in the x-ray films of pregnant women which has been recognized for a long time, but certainly very few cases have been recognized in the early stage which he exhibited. Most of the patients that I, myself, have seen have been found more or less accidentally by x-ray examination, the diagnosis not having been suspected from the clinical story. I have never personally seen one as early as one of those which Dr. Swanson showed. I am sure that he has done us a service by calling attention to historical and clinical indications for x-ray examination to determine the presence of anencephaly. The diagnosis itself is not difficult if good radiographs are made and careful attention is paid to the skeleton of the fetus. The finding, however, is so uncommon that I would scarcely believe it justified to advocate routine x-ray examination of pregnant women in order to make a diagnosis. I do think that more attention should be paid to the signs which Dr. Swanson has indicated and x-ray examination done under these circumstances.

Dr. R. T. La Vake (Minneapolis): Dr. Swanson has brought out clearly the importance of being suspicious of fetal abnormality in the presence of hydramnios and has demonstrated the value of x-ray in all cases where you question the normality of the child.

As to the prospects of future normal children after such abnormalities, I would like to introduce a note of optimism. A patient of mine began her childbearing career with three successive lethally defective children. Following the clear direction of statistics, I counseled agaist her becoming pregnant again. This advice she did not follow and her last three children proved to be normal and have remained so.

Dr. A. G. Schulze (Saint Paul): Is there any explanation of polyhydramnios?

Dr. Wallace P. Ritchie (Saint Paul): I would like to ask Dr. Swanson a question. This concerns the subject of the hydrocephalic infant. We see a great many of them during the year and they develop very shortly after birth. Can one determine early hydrocephalus *in utero*, say between the third and fourth months?

Dr. Harold F. Flanagan (Saint Paul): In my experience there are very few anencephalics, but many more hydrocephalics. While I agree with Dr. Swanson that it might be well to terminate the pregnancy, I think one must have all the criteria before terminating a pregnancy. There is not the problem in delivery in the anencephalic monster that there is in hydrocephalus. Others may not all be quite as competent in reading x-ray findings as are Dr. Rigler and his associates.

Dr. Swanson (in closing): In reply to Dr. Schulze's question, hydramnios very often accompanies anencephalus and it is thought to be due to the open condition of the skull and spinal canal with excessive amounts of cerebrospinal fluid being formed. The fetus swallows and inhales fluid *in utero* which is handled through the maternal circulation, and in anencephalus the brain abnormality interferes with this function and hydramnios results (Potter).

Dr. La Vake mentioned one mother with three defective children followed by three normal siblings. This does not change the statistical fact that these women run a risk twenty-five times greater than the normal woman.

In reply to Dr. Ritchie's question regarding the diagnosis of hydrocephalus at three to four months of gestation, all I can say is that this condition is seldom present at birth except with spina bifida and, since it is mostly obstructive, it probably could not be picked up by x-ray this early.

I would reply to Dr. Flanagan that the diagnosis of anencephalus is simple and the x-ray need not be read by an expert. The absence of the calvarium is conclusive. He states that they are rare. I have described six cases in this presentation diagnosed between four and six months and I know of many additional cases here in Minneapolis not diagnosed until birth, which does not make this rare. He believes that the family should not be told and that the pregnancy be allowed to terminate itself, since labor presents no problems. The purpose of this paper was to show that the diagnosis could be made early and that, since these children never survive, the termination of pregnancy was obstetrically correct and justified.

Dr. Edward P. Burch, of Saint Paul, read a paper.

ADVANCES IN CATARACT SURGERY

EDWARD P. BURCH, M.D.
Saint Paul, Minnesota

From the time of Daviel until approximately twenty years ago, relatively few advances in the techniques of cataract surgery took place. A notable exception was the introduction of cocaine as a local anesthetic by Koller in 1882. Except for improvements and refinements in the instruments commonly used in the extraction of senile cataracts, however, very little progress was made until the early nineteen thirties.

For many years the classical operation for cataract consisted of local surface anesthesia with cocaine, corneal section with the von Graefe knife, a complete iridectomy, and capsulotomy with cystitome or toothed capsule forceps. While some operators employed various types of conjunctival flap which were closed by means of interrupted silk sutures, others employed no flap or sutures whatsoever. This technique imposed upon the patient the burden of remaining virtually immobile in bed with both eyes occluded for from five to seven days. Because of the fact that the vast majority of cataract patients are well-advanced in years, the ordeal of cataract surgery was not inconsiderable. Since the extra-capsular method of extraction was generally in vogue, many individuals were advised to wait until the lens opacities became mature and were thus condemned to many months, and even years, of visual incapacity. Post-operative iritis and prolapse of iris were commonly encountered as complications.

About twenty years ago there began to evolve the modern operation for senile cataract. Pontocaine, which enjoys several distinct advantages over cocaine, was introduced, more adequate anesthesia was obtained through retrobulbar injections of novocaine, corneoscleral sutures of many varieties came into widespread use, and the intra-capsular technique of extraction with forceps or erisophake was popularized. As a consequence of these advances the operation was rendered immeasurably safer, there were fewer operative and post-operative complications, and in many instances surgery was performed at a much earlier stage of development of the lens opacity. Somewhat greater freedom of movement and earlier ambulation also became feasible.

It might be of interest to discuss in some detail those advances which have taken place in the last twenty years or so. Pontocaine, which was first employed as an ophthalmic local anesthetic was introduced by Wilmer and Paton in 1931. It has the advantage over cocaine of possessing better anesthetic qualities and neither dilates the pupil nor desiccates the cornea. At the present time chief reliance, as far as anesthesia is considered, is placed upon the retro-bulbar injection of some type of local anesthetic such as 2 per cent novocaine. Unless the patient is suffering from hypertension a small amount of epinephrine is added to the novocaine. Quite recently hyaluronidase has been added to the anesthetic. This definitely seems to be an advantage from the standpoint that smaller amounts of anesthetic solution become necessary to produce adequate anesthesia. In addition the percentage of satisfactory nerve-blocks is increased. This in turn decreases the likelihood of vitreous loss. As a rule, if the H. Gifford type of retrobulbar injection is employed, the eye becomes extremely soft and it is more judicious to employ the orthodox technique of retrobulbar injection if an extra-capsular extraction is contemplated in advance, since the profound hypotony which often ensues after the Gifford type of block may render actual extra-capsular delivery of the lens quite difficult. It has recently been demonstrated that 1 per cent xylocaine is also an excellent anesthetic agent for deep orbital injection and akinesia of the lids. Xylocaine as well as novocaine may be combined with either epinephrine or hyaluronidase, or both. The impression has been gained that if an intracapsular extraction is planned, xylocaine may be superior to novocaine, since marked hypotony, together with excellent ciliary ganglion and motor block and akinesia, has been noted in a very high percentage of cataract patients receiving xylocaine.

While routine lens extraction with general anesthesia under sodium pentothal-curare has recently gained some advocates, it seems unnecessary to subject the majority of patients to the slight but definitely added risk which this procedure entails. Very possibly its greatest usefulness is for the small group of patients who are unduly apprehensive, completely deaf, or psychotic. It is also useful when, because of faulty retro-bulbar injection, there is a tendency for what H. Gifford has termed a positive vitreous pressure or thrust to develop. If such a complication ensues after the corneal section has been accomplished, the operation may be briefly halted and intravenous Baird's solution administered. This will usually cause the eye to assume a more normal vitreous pressure, probably because of the action of curare upon the extra-ocular muscles.

Undoubtedly, the single most important technical improvement in the extraction of the lens is the almost universal use of some type of corneoscleral suture, either with or without a conjunctival flap. The number and variety of sutures employed is virtually legion. Both mildly-chromicized catgut and fine black silk sutures are being used. The corneo-scleral suture permits much more freedom in bed to the patient, allows earlier ambulation and discharge from the hospital. It has rendered postoperative occlusion of both eyes quite unnecessary. Corneo-scleral sutures greatly lessen the threat of iris prolapse. They reduce the amount of astigmatism, promote earlier reformation of the anterior chamber, and decrease the incidence of hemorrhage into the anterior chamber. It has been found perfectly safe and feasible to discharge patients from the hospital in six or seven days following operation. Twenty-five years ago the majority of cataract patients were hospitalized from ten to fourteen days. A very substantial saving in hospitalization costs has therefore become possible due to the use of corneo-scleral sutures.

Such sutures also permit the preservation of a round pupil in the majority of operations for cataract. The cosmetic effect is infinitely better if it is not necessary to carry out a complete basal iridectomy.

TABLE I.

Vision with Aphakic Correction		
20/10	18	
20/15	27	
20/20	25	70%
20/25	13	
20/30	10	93%
20/40	4	
20/50	1	
20/60	1	99%
20/200	1	

Cylinder	
None	9
.25D— 1.00D	30
1.25D— 2.00D	36
2.25D— 3.50D	18
3.75D—or more	7

Average cylinder 1.62D

The chief advantage in the use of absorbable, mildly chromicized, catgut sutures over silk is that the removal of the latter type is always attended by some slight but ever-present risk. It is not advisable to remove silk sutures before the ninth or tenth post-operative day, a factor which necessitates a longer period of hospitalization than if catgut sutures are employed for wound closure.

Since the advent of the sulfa drugs and the antibiotics, potent agents are available to sterilize the conjunctival sac before operation and to combat infection in the untoward event of post-operative infection. For the former the broader spectrum antibiotics are preferable. Cortisone, a relatively recent agent in the ophthalmic armamentarium, can be of great value in checking post-operative iritis, particularly that variety which is due to retained lens substance following extra-capsular extraction.

The accompanying tables represent the complications and results in a series of 100 consecutive, private patients operated upon at the Charles T. Miller Hospital, Saint Paul, Minnesota, during the first five months of 1951.

In every instance 000000 chromic catgut was employed with atraumatic needles attached. The operative technique, which was employed with almost no variation, consisted after the usual skin preparation of injecting the lids and retro-bulbar space with xylocaine or novocaine-epinephrine as described by H. Gifford. The deep injection with 4.5 cm. needle was not employed when an extra-capsular extraction was in prospect. In these instances the 2.5 cm. needle was used. The corneal section was made with a keratome in all but a few instances. The keratome incision was enlarged by means of Maguire or Aebli scissors. If the pupil was sufficiently dilated to permit a safe extraction of the lens through the pupil a peripheral iridectomy was carried out. In all cases where the pupillary aperture was considered to be too small to deliver the cataractous lens through the pupil, or if anterior synechiae were noted, a complete iridectomy was done. Following the iridectomy, 000000 chromic, catgut sutures were inserted at one-thirty, twelve, and ten-thirty o'clock. These sutures were direct, cornea to sclera, appositional sutures. After the sutures had been looped out of the way in such a manner that they did not interfere with delivery of the lens, the actual extraction of the lens was carried out. Following most extra-capsular extractions air was injected into the anterior chamber. If a round pupil extraction was performed, a solution of 1 per cent pilocarpine was instilled in the anterior chamber since eserine is ineffectual after ciliary-ganglion block. If a complete iridectomy was carried out 1 per cent atropine was used instead. A 0000 black silk suture was then placed centrally near the free margin of the upper lid and taped to the cheek. Only the operated eye was bandaged.

TABLE II.

Intracapsular operations	62
Extracapsular operations	38
Round pupil operations	72
Complete iridectomies	28
Complications	
Loss of vitreous	3
Iris prolapse	3
Post-operative glaucoma	1
Post-operative iritis	1
Post-operative hemorrhage	2
Total cases	10
Pre-operative Complications	
Glaucoma	5
Diabetes	10
Iritis (old healed)	3
Total cases	18

The placement of direct, appositional, catgut sutures is not difficult and no significant over-riding will occur if the sutures are meticulously placed. Three such sutures are adequate, although one or two additional sutures may be added if the patient has a severe cough or the surgeon has reason to believe that the patient will become excessively restive.

Discussion

Dr. H. W. Grant (Saint Paul): I have been very interested in this discussion. Dr. Burch performs a large number of cataracts and does them very well. One can eliminate infections by the use of antibiotics; therefore, infection is no problem now. Anesthesia has also markedly improved. Anesthesia must be deep as there is immediate expulsion of the contents of the globe under coughing. However, I have used general anesthesia a little but find it unnecessary.

I believe that you must use catgut, as it is advantageous if the suture should pull through the appositioned edge of the wound. With catgut one gets proliferic changes not present if silk is used.

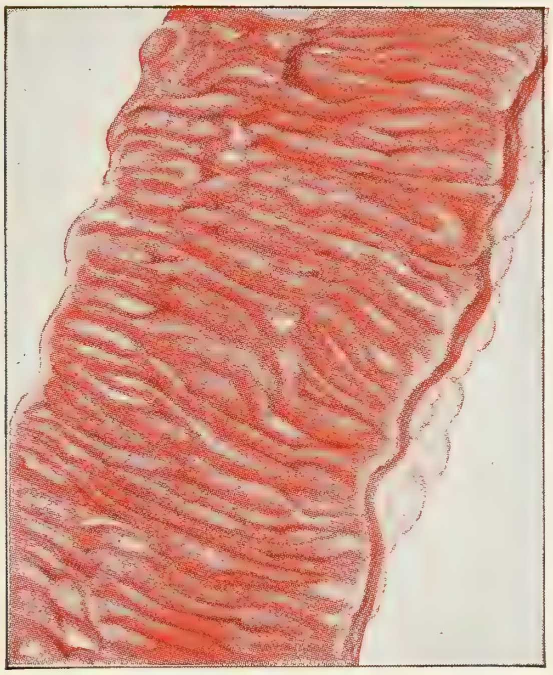
The most important part of cataract surgery is to handle the crises arising during surgery. Intracapsular extraction is here to stay. Each cataract surgeon should work out a technique which is satisfactory to him.

Dr. C. N. Hensel (Saint Paul): Since most of the patients are in the sixth, seventh and eighth decades, and since Vitamin B and C are water-soluble, we find in these people that Vitamin C is of great value. I would like to ask Dr. Burch if he feels that Vitamin C is advantageous in these individuals?

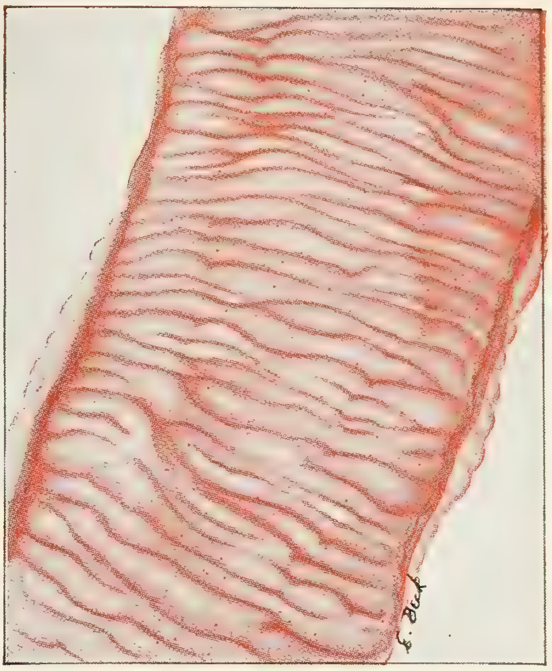
Dr. Burch (in closing): Yes, I agree with Dr. Grant regarding the hazards of general anesthesia in cataract surgery. We prefer to have the patient awake.

(Continued on Page 1174)

Promotes Normal Peristalsis—Without Injury to Mucosa



Irritated, injected mucosa such as is produced by roughage.



Mucosa remains normal following Metamucil.

Metamucil produces "a smooth, highly glistening mucosa and an increase in the tone of the bowel musculature."*

With Metamucil's "smoothage" management of constipation there is no irritation, straining or impaction—and no interference with digestion or absorption of oil-soluble vitamins.

Metamucil powder is taken with a full glass of cool liquid—producing an adequate quantity of bland, plastic, water-retaining bulk which mixes intimately with the intestinal contents and is distributed evenly through the digestive tract.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

METAMUCIL® is the highly refined mucilloid of Plantago ovata (50%), a seed of the psyllium group, combined with dextrose (50%) as a dispersing agent.

* Block, L. H.: Management of Constipation with a Refined Psyllium Mucilloid Combined with Dextrose, Am. J. Digest. Dis. 14:64 (Feb.) 1947.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

◆ Reports and Announcements ◆

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The Forty-ninth Annual Congress on Medical Education and Licensure will be held at the Palmer House in Chicago, February 9-10, 1953. The annual Congress is conducted under the auspices of the Council on Medical Education and Hospitals of the American Medical Association and the Federation of State Medical Boards of the United States.

An open meeting of the Advisory Board for Medical Specialties will be held at the Palmer House from 9 a.m. to 12:30 p.m. on February 8.

Refer to the Annual Congress on Medical Education and Licensure when writing to the Palmer House for your reservations.

CHICAGO MEDICAL SOCIETY CLINICAL CONFERENCE

March 3, 1953, will be the opening day of the Ninth Annual Clinical Conference of the Chicago Medical Society. This Conference, designed to be of interest to both the specialist and the general practitioner, will be held at the Palmer House in Chicago.

Conducting the Conference will be a faculty ranging from thirty-five to forty outstanding speakers each offering a presentation relating to his specialty. Another group will give daily teaching demonstrations which includes the presentation of patients. The teaching will emphasize the actual technique to be employed in handling orthopedic, medical and pediatric problems. Besides these demonstrations each day, there will be a panel discussion at a round-table luncheon presenting topics of timely interest.

Our technical exhibitors are eager to present their latest advances in the field of medicine which will enable the doctor of today to treat his patient most effectively. The scientific exhibitors will demonstrate the handicraft and professional worthiness of leaders of the profession and they will be found to be most worthy of study.

The Chicago Medical Society sponsors this program for its members to whom no fee is charged. Those who are not members are asked to pay a fee of $5.00 when they register.

This is the time to set up your arrangements so these four days in March will permit you to come to the Palmer House and not only visit with physicians from all sections of the United States and Canada but likewise hear and see the latest developments in modern medicine.

INDUSTRIAL MEDICINE FELLOWSHIPS

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of Fellowships offered to qualified candidates who wish to pursue a graduate course of instruction in preparation for the practice of Industrial Medicine. Any registered physician who is a graduate of a Class A medical school and who has completed satisfactorily at least two years of training in a hospital accredited by the American Medical Association may apply for a Fellowship in the Institute of Industrial Health. (Service in the Armed Forces or private practice may be substituted for one year of training.)

The course of instruction consists of a two-year period of intensive training in Industrial Medicine, followed by one year of practical experience under adequate supervision in industry. Candidates who complete satisfactorily the course of study will be awarded the degree of Doctor of Industrial Medicine.

During the first two years, the stipends for the Fellowship vary, in accordance with the marital status of the individual, from $2,100 to $3,000. In the third year the candidate will be compensated for his service by the industry in which he is completing his training.

A one-year course, without stipend, is also offered to qualified applicants.

Requests for additional information should be addressed to the Institute of Industrial Health, College of Medicine, Eden and Bethesda, Cincinnati 19, Ohio.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club in Sain Paul, November 11. Officers elected for the coming year were Dr. Alan Challman, Minneapolis, president; Dr. A. B. Baker, Minneapolis, vice president, and Dr. Royal C. Gray, Minneapolis, secretary-treasurer.

Dr. Joseph A. Resch spoke on "An Unusual Anomaly of the Spinal Cord," and Dr. Werner Simon on, "The Diagnosis of Brain Tumor Masked by Mental Symptoms," at the scientific program which followed the meeting.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The sixteenth annual meeting of The New Orleans Graduate Medical Assembly will be held March 2-5, 1952, with headquarters at the Municipal Auditorium.

Eighteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. In addition, the program will include a symposium on "The Value of Newer Drugs," daily demonstrations of medical and surgical procedures in color television, clinico-pathological conferences, medical motion pictures, over 100 technical exhibits and three roundtable luncheons.

The Assembly has planned another interesting post-clinical tour to follow the 1953 meeting in New Orleans. On Saturday, March 7, a party composed of doctors and their families will leave New York for Europe on the great new superliner, *S. S. United States*. The itinerary includes England, France, Switzerland and Italy, and arrangements have been made for medical programs in these countries. The tour ends in Rome and the group

(Continued on Page 1154)

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Schering CORPORATION · BLOOMFIELD, N. J.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

(Continued from Page 1152)

will return to New York on March 31 by Pan American World Airways, *President Special.*

Details of the New Orleans meeting and the post-clinical tour are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

PAN-PACIFIC SURGICAL CONGRESS

The executive office of the Pan-Pacific Surgical Association announces that the Sixth Pan-Pacific Surgical Congress will be held in Honolulu in November, 1954.

Included in the scientific program will be sessions in all divisions of surgery and related fields, with papers presented by topflight surgeons from the Pacific Area countries.

For further information concerning the Sixth Congress or membership in the Association, doctors may write to the Pan-Pacific Surgical Association, Suite 7, Young Building, Honolulu, Hawaii.

POSTGRADUATE WORK IN VIENNA

The reorganization of the American Medical Society of Vienna has made possible arrangements for American doctors to take postgraduate training at the University of Vienna. In conjunction with the University of Vienna, Academy of Medicine, the Society will be able to arrange specialized postgraduate courses to fit the individual requirements of United States' doctors and those of other English-speaking countries. Tuition and other expenses will depend on the length and type of study arranged, but will generally be less than the usual charges for such studies elsewhere. Facilities should be ready by April 1, 1953. All correspondence should be directed to Dr. M. Arthur Kline, Vienna Academy of Medicine, c/o Allgemeines Krankenhaus, Direktionsgebaeude, 2. Stock, Vienna IX. Alserstrasse 4.

THE HENNEPIN COUNTY TUBERCULOSIS ASSOCIATION

The rôle of the physician in turberculosis control is the main theme of the new series of "The Constant Invader," now being broadcast Sundays at 4:15 p.m. by WCCO. Edward Arnold, stage and screen star, is the narrator.

The fifteen-minute transcribed programs, sponsored by the Hennepin County Tuberculosis Association, and produced by the National Tuberculosis Association, are based on true stories of men and women who have fought personal battles with TB.

The series, which began October 12, will continue for thirteen weeks.

CONTINUATION COURSES

A continuation course in *Pediatric Neurology* will be presented by the University of Minnesota from January 26 to 31, 1953. The course, which will be held at the Center for Continuation Study on the University campus,

(Continued on Page 1156)

ANNOUNCING

The Sixteenth Annual Meeting

of

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Conference Headquarters — Municipal Auditorium

MARCH 2-5, 1953

GUEST SPEAKERS

J. Lamar Callaway, M.D., Durham, N. C.
Dermatology
A. H. Aaron, M.D., Buffalo, N. Y.
Gastroenterology
Herbert E. Schmitz, M.D., Chicago, Ill.
Gynecology
Carl V. Moore, M.D., St. Louis, Mo.
Hematology
Rudolph H. Kampmeier, M.D., Nashville, Tenn.
Internal Medicine
Henry A. Schroeder, M.D., St. Louis, Mo.
Internal Medicine
Guy L. Odom, M.D., Durham, N. C.
Neurosurgery
Andrew A. Marchetti, M.D., Washington, D. C.
Obstetrics
Harold F. Falls, M.D., Ann Arbor, Mich.
Ophthalmology

J. Vernon Luck, M.D., Los Angeles, Calif.
Orthopedic Surgery
G. Edward Tremble, M.D., Montreal, Can.
Otolaryngology
Arthur P. Stout, M.D., New York, N. Y.
Pathology
Waldo E. Nelson, M.D., Philadelphia, Pa.
Pediatrics
Edward B. D. Neuhauser, M.D., Boston, Mass.
Radiology
George Crile, Jr., M.D., Cleveland, Ohio
Surgery
Robert E. Gross, M.D., Boston, Mass.
Surgery
Charles W. Mayo, M.D., Rochester, Minn.
Surgery
Wyland F. Leadbetter, M.D., Boston, Mass.
Urology

Lectures, symposia, clinicopathologic conferences, round-table luncheons, surgical and medical procedures in color television, medical motion pictures and technical exhibits.

(All-inclusive registration fee—$20.00)

THE POSTCLINICAL TOUR TO EUROPE BY SHIP AND PLANE—ENGLAND, FRANCE, SWITZERLAND AND ITALY—MARCH 7-31

For information concerning the Assembly meeting and the tour write
Secretary, Room 103, 1430 Tulane Avenue, New Orleans 12, La.

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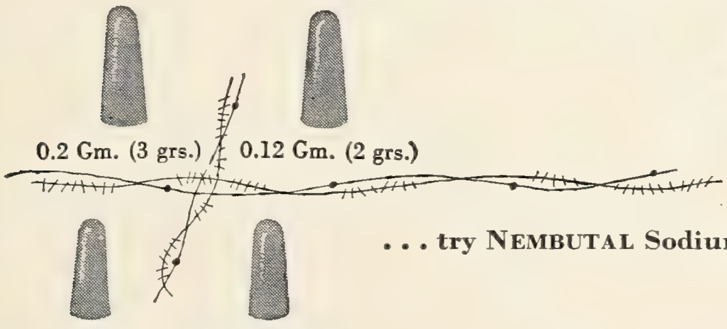

0.2 Gm. (3 grs.)
0.12 Gm. (2 grs.)
60 mg. (1 gr.)
30 mg. (½ gr.)

. . . try NEMBUTAL Sodium Suppositories

CONTINUATION COURSES

(Continued from 1154)

will appeal to pediatricians, neurologists, and physicians engaged in general practice. A partial list of subjects to be discussed includes the convulsive disorders, infectious neurological diseases, brain tumors in childhood, and subdural hematoma. The faculty will include Dr. Paul C. Bucy, Professor, Department of Neurology and Neurological Surgery, University of Illinois; Dr. Margaret H. D. Smith, Assistant Professor, Department of Pediatrics, Tulane University; and Dr. Douglas Buchanan, Associate Professor, Department of Pediatrics, University of Chicago. The course will be presented under the direction of Dr. Irvine McQuarrie, Professor and Head, Department of Pediatrics, and the remainder of the faculty will include clinical and full-time members of the staff of the University of Minnesota Hospitals and the Mayo Foundation.

* * *

The University of Minnesota will present a continuation course in *Ophthalmology for Specialists* at the Center for Continuation Study from January 19 to 24, 1953. Emphasis will be placed throughout the session on therapy of a variety of ocular disorders.

The visiting faculty for the course will include Dr. Kenneth C. Swan, Professor and Head, Department of Ophthalmology, University of Oregon Medical School, Portland. The course will be presented under the direction of Dr. Erling W. Hansen, Professor and Director, Division of Ophthalmology, and the remainder of the faculty will include members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

Cook County Graduate School of Medicine

POSTGRADUATE COURSES—Winter 1952-53

SURGERY—Intensive Course in Surgical Technic, two weeks, starting January 19, February 2, February 16
  Surgical Technic, Surgical Anatomy & Clinical Surgery, four weeks, starting March 2
  Surgical Anatomy & Clinical Surgery, two weeks, starting March 16
  Basic Principles in General Surgery, two weeks, starting March 23
  Gallbladder Surgery, ten hours, starting April 20
  Surgery of Colon and Rectum, one week, starting March 2
  General Surgery, one week, starting February 9
  General Surgery, two weeks, starting April 20
  Fractures and Traumatic Surgery, two weeks, starting March 2
GYNECOLOGY—Intensive Course, two weeks, starting February 16
  Vaginal Approach to Pelvic Surgery, one week, starting March 2
OBSTETRICS—Intensive Course, two weeks, starting March 2
PEDIATRICS—Intensive Course, two weeks, starting April 6
MEDICINE—Intensive General Course, two weeks, starting May 4
  Electrocardiography & Heart Disease, two weeks, starting March 16
  Allergy, one month and six months, by appointment
UROLOGY—Intensive Course, two weeks, starting April 13
  Ten-Day Practical Course in Cystoscopy starting every two weeks
DERMATOLOGY—Intensive Course, two weeks, starting May 4

TEACHING FACULTY—ATTENDING STAFF OF COOK COUNTY HOSPITAL

ADDRESS: REGISTRAR, 707 South Wood Street
Chicago 12, Illinois

* * *

A continuation course in *Clinical Chemistry for Physicians* will be presented by the University of Minnesota next February 2-4. The two-and-a-half-day session, which will be held in the Center for Continuation Study and the University of Minnesota Hospitals Laboratories, has been designed to help the physician in setting up and supervising laboratory procedures in his own office or local hospital. Attendance will be strictly limited, and instruction will consist principally of actual experience at the Laboratory benches. Dr. Gerald T. Evans, Director of Hospital Laboratories, and Professor, Department of Medicine, will be in charge of instruction.

* * *

Minnesota physicians met at the University of Minnesota's Center for Continuation Study Thursday (Nov. 13) for a three-day meeting on *Fractures and Surgery of Trauma.*

Evaluation of injuries from the medico-legal standpoint and a symposium on the seriously injured patient were special features of the program. Two visiting lecturers spoke at the sessions—Dr. Carroll B. Larson, chief of service, department of orthopedic surgery, State University of Iowa, Iowa City, and Dr. Edward L. Compere, professor of bone and joint surgery, Northwestern University Medical School, Chicago.

The course was under the direction of Dr. Owen H. Wangensteen, chairman of the University's surgery department, and Dr. Wallace H. Cole, professor and director of the division of orthopedic surgery. Some of the discussions will be led by members of the University medical school faculty.

PAMPHLETS ON MULTIPLE SCLEROSIS PROBLEMS AVAILABLE

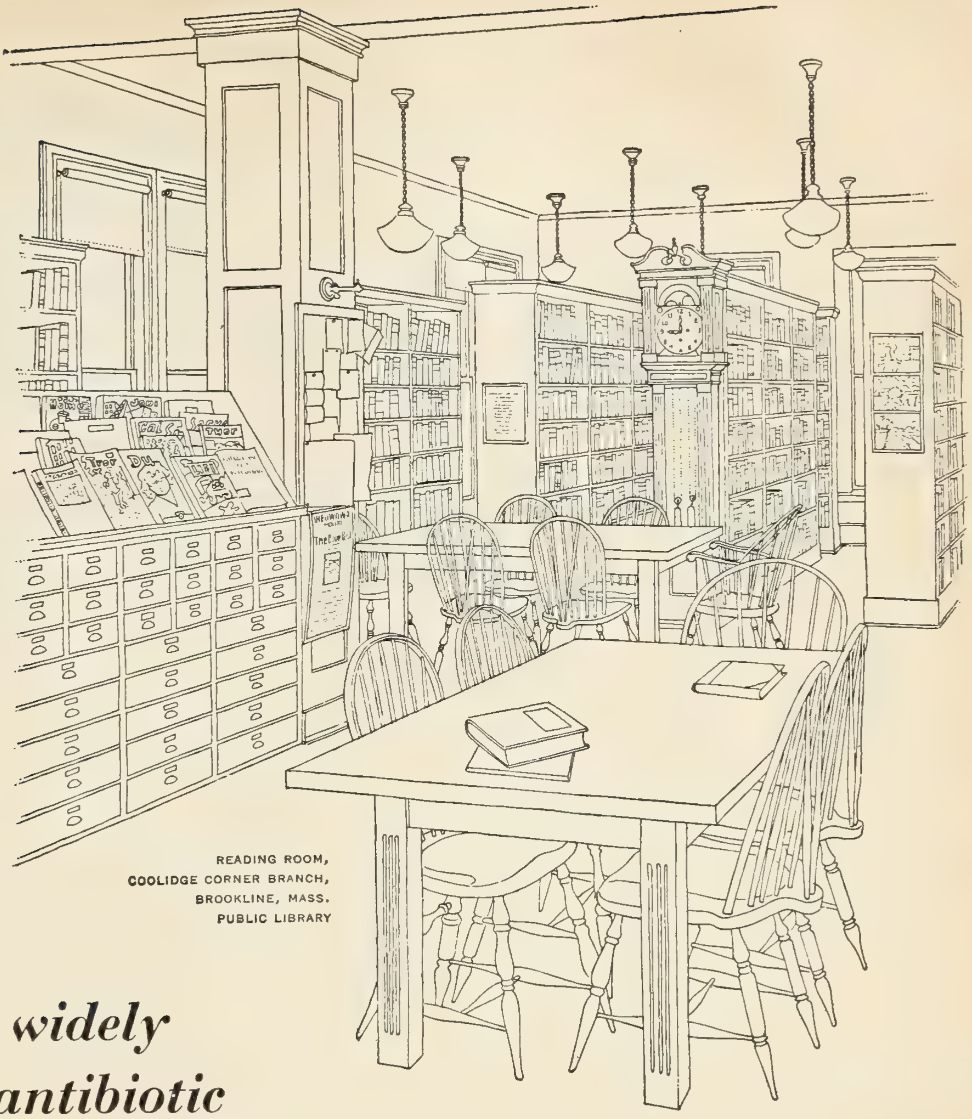
The National Multiple Sclerosis Society has announced that a series of pamphlets dealing with the problems of physical medicine and rehabilitation in multiple sclerosis is available at no cost to physicians who wish to have them. The four pamphlets are directed for the care of independent ambulatory patients, those requiring canes or crutches, wheel chair patients and bed patients. Physiotherapy has more to offer these patients than any known drugs.

MEDICAL MOTION PICTURES

The Committee on Medical Motion Pictures has announced the publication of a new revised film list which includes seventy-eight medical films not readily available from other sources.

This list will be available for distribution after December 1, 1952. A copy may be obtained by writing the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

New aureomycin
minimal dosage for adults
—four 250 mg.
capsules daily, with milk.



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The successful use of aureomycin, as described in publications by physicians throughout the world, has increasingly encouraged others to use this antibiotic and publish reports thereon. To date, more than 7,000 original reports, editorials, brief comments, and similar notations have appeared in the published literature.

The trend of the literature clearly indicates that in desperate situations caused by infection, where previously cure would have proved difficult or impossible, aureomycin has saved the day.

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Ophthalmic Solution: Vials of 25 mg.; solution prepared by adding 5 cc. distilled water.

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Woman's Auxiliary

RAMSEY AUXILIARY BEGINS FALL WORK

Mrs. Wallace P. Ritchie

The members of the Ramsey County Medical Auxiliary have assumed many responsibilities for projects during the year.

On Friday, October 24, they staffed a booth devoted to poliomyelitis at the Minnesota Education Association convention in Saint Paul. The delegates showed a great deal of interest in the part that schools can plan in stamping out polio.

On Monday, October 27, members were shown an American Medical Association film, "Here's Health—the American Way," dealing with the problems of doctors in both rural and urban centers.

On November 5, the Auxiliary worked at the Christmas Seal headquarters stuffing envelopes for the annual sale of Christmas seals, and on the same day helped with the registration of Saint Paul women for Civilian Defense at two meetings of the Women's Institute.

SCHOOL OF INSTRUCTION WELL ATTENDED

Mrs. Leonard Arling

Last October 10, some 100 women from all over the state gathered at the Hotel Saint Paul to attend a School of Instruction meeting on how to improve the relations of local medical auxiliaries with other organizations and individuals in the state.

After a short Board meeting, a Public Relations Panel, handled by experts in their own field, told Auxiliary members exactly where the doctor and his wife fall down in this extremely important aspect of their life.

The use of exhibits as an Auxiliary tool in public relations was discussed by Wallace Fulton, Acting Director, Division of Public Health Education, Minnesota Department of Health, who presented a few rules:

1. Get across one main idea. Brevity is important. Get kernel of the idea across in a few words.
2. The idea must get across in forty to seventy seconds, the length of time the average exhibit viewer looks at an exhibit.
3. Your exhibit must pertain to problems in your district. Use an art teacher, a store window dresser, or a manual training teacher to help plan and make it up.
4. Color, lighting, motion are necessary to a good exhibit.

The press side of the story was told by Victor Cohn, science writer for the *Minneapolis Tribune,* who said, "Tell your story accurately, simply. Local doctors should act as spokesmen, experts in the field for local medical problems. Present the health problems. Don't try just to get names in. The public is not interested in what you say, but in what you do."

Jim Borman, News Director for WCCO, told auxiliary members that both newsmen and doctors' wives must be patient and long-suffering. He felt that the doctor's wife must gossip less than most women, because she seems worried and tired. She must be broadminded, never jealous. However, he felt, doctors' wives seem to strive socially too much, and not enough in their community for humble, civic duties. They should emulate their husbands who give unceasingly of their time and strength for others. Their wives should have a stronger sense of civic responsibilities.

Mrs. Lewis Minion, Home and Community Director of the Minnesota Farm Bureau Federation, represented other organizations on the panel. She noted, "We are not political, but show what the common people can do working for health without government help and interference. We are definite, violent opponents of any type of socialized medicine. We are pioneers in Blue Cross and Blue Shield. We promote practical nursing. . . ."

The luncheon speaker was Senator Edward J. Thye, who spoke on the need of the world for a great diplomat as United States president. He stated that for what the boys win by their blood on the battlefield America repeatedly loses by blunders at the diplomatic conference table. The United States must have the confidence of the world, he said, that it does know where it is going, or America will lose the world leadership, which will fall into Russia's waiting hands.

Mrs. James McDonnough, Chicago, fourth vice president of the Woman's Auxiliary to the American Medical Association, spoke on membership. She stated, "We want 5,000 new members this year. Coming together, beginning, planning together, making progress, working together is success. Our 60,000 national members must work and fight together; every woman should have a specific job to make her work, and gain her friends. As Emerson said, 'Nothing was ever achieved without enthusiasm.'"

Mrs. Harold F. Wahlquist, past president of the Woman's Auxiliary to the American Medical Association, reported on the Minnesota Public Health Conference. She felt that it is up to the Auxiliary to see a health need, emphasize it, until lay people see it, grab it and carry on with it. There are nearly 12 million people over sixty-five years of age in Minnesota—more than in California or Florida. Minnesota is now an urban state, not rural. The Auxiliary should work so that local levels solve their own problems. It is important that old people be made self-sufficient and independent.

Following this, round tables on eight aspects of Auxiliary work were held.

WHEN DIETARY SUPPLEMENTATION IS NEEDED...

what more could a supplement provide?

If the concept of an ideal dietary supplement could be formulated, it might well be one that provides qualitatively every substance of moment in human nutrition. It would provide those for which human daily needs are established as well as others which are considered of value, though their roles and quantitative requirements remain unknown.

How Ovaltine in milk approaches this concept, and how well the recommended three glassfuls daily augment the nutritional intake, is shown in the appended table. The two forms of Ovaltine available—plain and chocolate flavored—are closely alike in their nutrient values.

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*CALCIUM	1.12 Gm.
CHLORINE	900 mg.
COBALT	0.006 mg.
*COPPER	0.7 mg.
FLUORINE	3.0 mg.
*IODINE	0.7 mg.
*IRON	12 mg.
MAGNESIUM	120 mg.
MANGANESE	0.4 mg.
*PHOSPHORUS	940 mg.
POTASSIUM	1300 mg.
SODIUM	560 mg.
ZINC	2.6 mg.

VITAMINS	
*ASCORBIC ACID	37 mg.
BIOTIN	0.03 mg.
CHOLINE	200 mg.
FOLIC ACID	0.05 mg.
*NIACIN	6.7 mg.
PANTOTHENIC ACID	3.0 mg.
PYRIDOXINE	0.6 mg.
*RIBOFLAVIN	2.0 mg.
*THIAMINE	1.2 mg.
*VITAMIN A	3200 I.U.
VITAMIN B_{12}	0.005 mg.
*VITAMIN D	420 I.U

*PROTEIN (biologically complete)	32 Gm.
*CARBOHYDRATE	65 Gm.
*FAT	30 Gm.

*Nutrients for which daily dietary allowances are recommended by the National Research Council.

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In Memoriam

JOHN S. GROGAN

Dr. John S. Grogan, since 1925 a practitioner at Wadena, Minnesota, died October 21, 1952, of a heart attack. He was seventy-two years of age.

Dr. Grogan was born at Streator, Illinois, September 24, 1880. He graduated from Knox College with a B.S. degree in 1904 and was prominent in undergraduate baseball and football activities. A fifty-five-yard drop kick for a goal against the University of Illinois should he recorded. He gave up a successful coaching career at Fargo and the University of Idaho to begin the study of medicine at Northwestern University at the age of twenty-nine. He graduated in 1914.

After interning at the Kenmore, North Dakota, hospital he practiced in this town a year and in Flaxton, North Dakota, from 1915 to 1925 before joining the Wadena Clinic in 1925. Dr. Grogan left the clinic in 1948 but joined the Red Cross Mobile unit during the summer of 1951, travelling throughout Minnesota.

He was a member of Phi Beta Pi and Nu Sigma Nu fraternities and the Rotary Club of Wadena. He had served on the Wadena School Board from 1933 to 1951 and was also a member of the Fair Oakes Sanatorium Board.

He was a member of the Upper Mississippi Valley Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Grogan married Magna Melby of Kenmore, North Dakota, who with two daughters and a son, Dr. John M. Grogan of Denver, survives him.

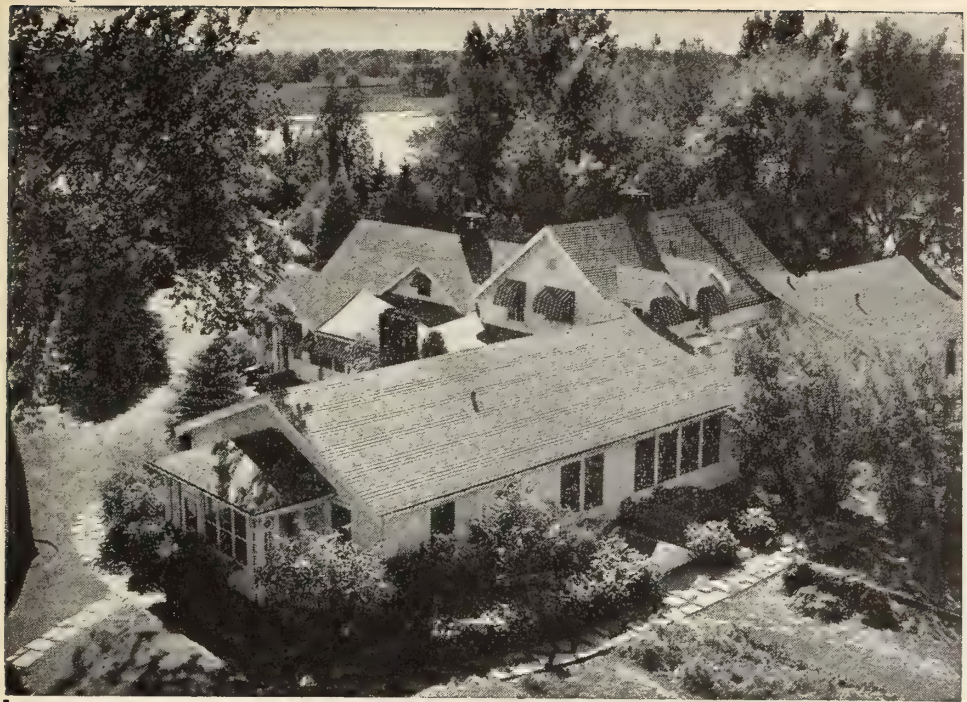
ELMER F. LUNDQUIST

Dr. Elmer F. Lundquist, a practitioner in Minneapolis since 1924, died October 19, 1952. He was fifty-nine years of age.

Dr. Lundquist was born in Minneapolis, November 29, 1892. He attended Central High School and the University of Minnesota, where he obtained a B.S. degree in 1914 and an M.D. degree in 1918. He interned at the U.S. Naval Hospital at Great Lakes from 1919 to 1924, when he returned to Minneapolis.

He was a member of the Alpha Kappa Kappa medical fraternity and attended Westminster Presbyterian Church. He was also a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. At one time he served as chief of staff of Swedish Hospital.

Dr. Lundquist is survived by his wife and a son, Dr. James A. Lundquist, now living in Alaska.



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Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
COSTS (Quarterly)				
Adult	2.50	5.00	7.50	10.00
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Child over age 19	2.50	5.00	7.50	10.00

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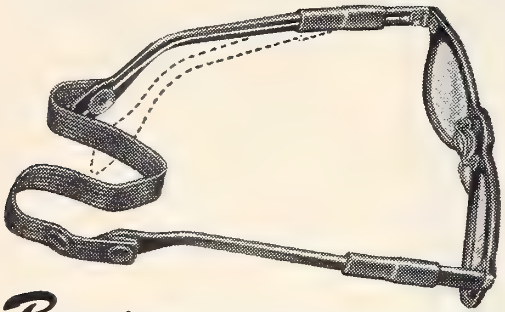

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Communication

Fort Snelling, Minnesota
20 October, 1952

To the Editor:

The item headed "Medical Services for Military Personnel" on page 976 of your October, 1952, issue was read with interest and makes a fine contribution in assisting local civilian physicians and hospitals in obtaining compensation for services rendered to active duty military personnel.

The basic premises of the item are well founded and apply to military personnel of the Air Force as well as those of the Army. However, the item as published conveys the erroneous impression that the Chief of the Minnesota Military District is responsible for military personnel of all three Military Departments in this regard.

In order to correct this erroneous impression and to aid your physician and hospital readers in obtaining prompt payment of fees for services rendered to active duty Air Force personnel, the following procedures are recommended:

(a) Upon identifying the patient as an active duty member of the Air Force notify the Commanding Officer of the nearest Air Force Station by collect telephone or telegram or by letter, giving the patient's name, rank, service number, the designation and post office address of the unit to which he is assigned, the diagnosis and the immediate prognosis. Include in your message a request that you be furnished written authority to continue the emergency treatment and instructions as to the ultimate disposition of the patient.

(b) Physicians and hospitals located in areas where there is no closer Air Force Station in Minnesota, the western half of Wisconsin, north Central Iowa, Eastern South Dakota, and North Dakota may address their written communications to the nearest listed below:

Commanding Officer, 72nd Air Base Squadron, Fort Snelling, Saint Paul 11, Minnesota.

Commanding Officer, 73rd Air Base Squadron, Williamson-Johnson, Municipal Airport, Duluth, Minnesota.

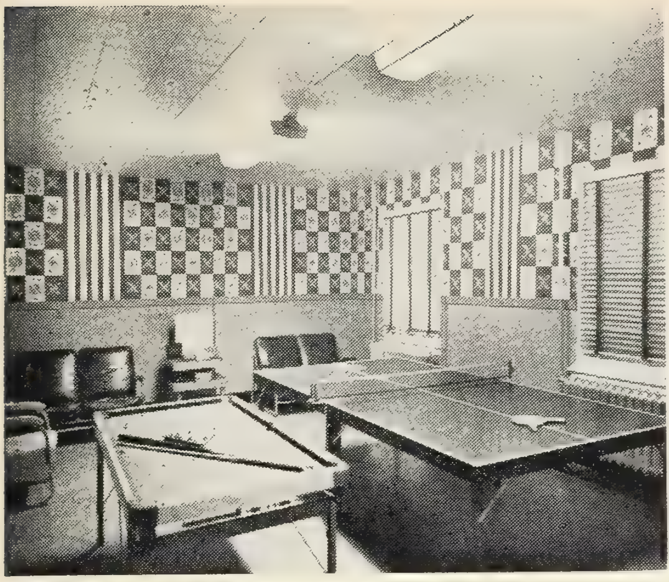
Commanding Officer, 78th Air Base Squadron, Truax Field, Madison, Wisconsin.

Commanding Officer, 79th Air Base Squadron, Sioux City Municipal Airport, Sioux City, Iowa.

(c) Telephone calls should be routed to the Surgeon at each of the above addresses.

Upon request, this office will furnish further information to assist any physician, dentist, pharmacist or hospital in this area to obtain prompt payment for services rendered to active duty Air Force personnel.

Thomas D. Wright
Capt. USAF (MC)
Surgeon



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◆ Of General Interest ◆

Dr. Winchell McKendree Craig, professor of neurosurgery in the Mayo Foundation at Rochester, Minnesota, was installed president of the Association of Military Surgeons of the United States at its annual meeting on November 19. He succeeds Major General Harry G. Armstrong, Surgeon General of the United States Air Force. Dr. Craig, a Rear Admiral in the United States Naval Reserve, was born in Washington Court House, Ohio, graduated from Culver Military Academy and Ohio Wesleyan University and received his medical degree from Johns Hopkins in 1919. He entered active duty with the Navy as Rear Admiral and was Chief of Surgery at Corona Naval Hospital, California, and at the National Naval Medical Center at Bethesda, Maryland.

* * *

Dr. Walter C. Alvarez of Chicago, formerly a gastroenterologist and teacher at the Mayo Foundation, University of Minnesota, has been honored as recipient of the first Honor Award to be given by the American Medical Writer's Association. The award, consisting of a gold medal and certificate, was presented to Dr. Alvarez at the dinner on the occasion of the 9th annual meeting of the Association at the Jefferson Hotel, St. Louis, Missouri, October 1, 1952. Dr. Alvarez is Editor-in-Chief of *Modern Medicine* and professional lecturer at the University of Illinois College of Medicine.

* * *

Dr. Stephen E. Kramer, staff member at Anoka State Hospital, left October 6, to practice psychiatry on the staff of the hospital at Crownsville, Maryland.

* * *

Dr. John Towey, medical director of Pinecrest Sanatorium, Powers, Michigan, formerly of Stillwater, was awarded the Dearholt medal for outstanding achievement in turberculosis work.

The award was presented at the Mississippi Valley Conference on Tuberculosis at St. Louis, Missouri. Presenting the award was a former Minnesotan, **Dr. John H. Skavlem,** Cincinnati, Ohio.

Minneapolis was selected for the October, 1953, conference.

* * *

At the annual meeting of the American Society of Plastic and Reconstructive Surgery held in New York in September, **Dr. Merrill D. Chesler,** Minneapolis, was admitted as a candidate member.

* * *

Dr. M. M. Williams has been recently appointed superintendent of the Minnesota State Sanatorium at Ah-Gwah-Ching.

* * *

Financial support for at least one more year was voted for the Minnesota Cancer Detection Center, October 14. The board of directors of the American Cancer Society's Minnesota Division voted to grant $20,000 and agreed, in principle to "continue the entire program for three years subject to budget limitations."

* * *

Dr. C. G. Uhley, Crookston, was re-elected the group's president and **Dr. David P. Anderson, Jr.,** Austin, was named second vice president.

* * *

Three new consultants—**Dr. James K. Masson, Dr. Kenneth A. Huizenga** and **Dr. Robert T. Patrick**—were named to the Mayo Clinic staff at the beginning of fall quarter.

* * *

Dr. Gaylord W. Anderson, director, School of Public Health, University of Minnesota, addressed the North Dakota Public Health Association convention, October 11, held at Grand Forks, North Dakota.

* * *

Dr. Robert B. Pierce, Renville, spoke on the effect of poliomyelitis on the local community, October 6, to the Ladies Auxiliary Unit of the Renville County Hospital Association, who were guests of the Bird Island Unit for the meeting.

* * *

Dr. Kristopher Hagen, who returned in June from serving with the Santal Mission in India, and is now practicing in Cokato, was a guest speaker at the First Lutheran Church at Columbia Heights, October 12.

* * *

After almost three months of touring seven European countries, **Dr.** and **Mrs. O. J. Seifert,** returned to New Ulm in October.

* * *

Dr. Gordon B. New, retired chief of plastic surgery at the Mayo Clinic, was awarded a silver plaque, September 30 in honor of his contribution to the field of plastic surgery, at a meeting of the American Society of Plastic and Reconstructive Surgery in New York.

* * *

Dr. S. F. Ceplecha, Redwood Falls, was the main speaker at the monthly meeting of the Renville-Redwood Medical Society held October 8.

* * *

Dr. O. A. Wisness, Confrey, received his student pilot's license in October. Dr. Wisness made his first solo flight after eleven hours of flying time.

* * *

New president of the Wabasha County Medical Society is **Dr. E. C. Bayley,** Lake City. Dr. Bayley succeeds **Dr. Doreen Martin,** Pepin, formerly of Wabasha. Other officers named at the meeting were **Dr. C. G. Ochsner,** Wabasha, vice president and **Dr. W. F. Wilson,** Lake City, secretary-treasurer.

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Dr. W. E. Archer joined the psychiatric staff of the Anoka State Hospital, October 1. Dr. Archer was graduated from Marquette University in 1926; he later did postgraduate work in neurology and psychiatry at the Veterans Administration Hospital at Hines, Illinois, and has recently been in practice at Dale, Wisconsin.

* * *

Dr. H. L. Smith was retired from the staff of the Mayo Clinic in September and is now enjoying what he says is the first opportunity to do a number of things which lack of time have never permitted him to do.

Dr. Smith has been successively a consultant in internal medicine; professor of medicine in the Mayo Foundation, graduate school, University of Minnesota; head of a section of medicine in the Mayo Clinic and senior consultant in the division of medicine.

* * *

Dr. Elmer Martinson, Wayzata, became a Fellow in the American College of Surgeons, September 26, at the meeting in New York.

* * *

Dr. William S. Terry, Minneapolis, was inducted into the navy and assigned to the Portsmouth Naval Hospital, Portsmouth, Virginia, in October.

* * *

New clinic quarters for **Drs. David O. Berge** and **Gilbert S. Wheeler** were recently finished in Roseau.

Dr. A. Mahowald, who has been serving the community for more than thirty years, left Albany, November 1, to accept a position at the State Hospital in Fergus Falls. Businessmen and social organizations honored Dr. Mahwold at a banquet October 23.

* * *

Dr. Arthur Collins, after four years of service at the State Hospital at Moose Lake, left in October to begin private practice in Duluth. His offices are in the Medical Arts Building.

* * *

Dr. Hugh A. Johnson and family left Rochester, October 15, for a nine-month trip abroad. The Johnsons plan to remain in England until after the coronation.

* * *

An orthopedic clinic sponsored by the crippled children services of the State Division of Social Welfare was held at Little Falls, November 1. There will be only six clinics this fall, instead of the usual ten of the fall series because of the shortage of public health nurses.

Dr. F. F. Callahan, chief of the medical services, State Division of Social Welfare, reminds physicians that any child, to be examined at any of the field clinics, must have a referral from his family physician.

* * *

Dr. John G. Rukavina became a member of the medical staff of the Mesabi Clinic at Hibbings, in October. Dr. Rukavina is a graduate of the University of Minnesota and has been certified as a specialist in Internal Medicine. He formerly practiced in Saint Paul.

* * *

Drs. R. G. Bickford, E. C. Clark and **David Daly** of the Mayo Clinic staff, attended and presented papers at a meeting of the Central Electroencephalographers Society in Madison, Wisconsin, October 18-19.

* * *

State hospital appointments of October 16, named **Dr. John Reitmann,** permanent superintendent of Anoka State Hospital and **Dr. Kenneth Douglas,** permanent superintendent of Sandstone State Hospital. Dr. Reitmann had been serving as superintendent of both the Sandstone and the Anoka Hospitals for three months.

Dr. Reitmann received his medical degree from the University of Minnesota. From 1945 to 1947, he served in the Army Medical Corp, spending nine months of this time in Germany working on an army discharge screening board. Following his army discharge, Dr. Reitmann was a psychiatrist at Hastings State Hospital until he became acting superintendent at Sandstone State Hospital in July of 1950.

Dr. Douglas, formerly clinical director at the Willmar State Hospital, received his medical degree from the University of Minnesota. From 1940 to 1949, he was in private practice at Tacoma, Washington, and in 1949, St. Peter. During 1950, and until he was appointed clinical director, Dr. Douglas was on the staff at the Willmar State Hospital.

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Dr. W. C. Kaufman was honored by the Appleton Saddle Club, October 10, at a Horse "Show-Deo." Recently Dr. Kaufman sold the old hospital he built nearly forty-five years ago to the village and thus paved the way for construction of the new hospital which was completed and opened last year. Proceeds from the show will be used to provide accessories for the new community hospital.

* * *

A special homecoming program, arranged for physicians by the University of Minnesota and the Minnesota Medical Alumni Association, was held at the University October 30-November 1.

A course in medical economics was presented October 30 and 31. **Dr. Charles G. Sheppard,** Hutchinson, speaker of the House of Delegates of the Minnesota State Medical Association, spoke on the medical school in relation to medical practice in the state, October 31. A part of the program featured **Dr. James R. Fox,** recently returned from a three-month visit to Great Britain where he was a practicing physician, in a special lecture on "Inside the British Health Plan."

Various clinics presenting patients with surgical, medical, pediatric, gynecological and dermatologic disorders were held.

* * *

Dr. Albert John Schroeder, Minneapolis, was elected to fellowship in the American Academy of Pediatrics in November.

Dr. Elizabeth Leggett resigned her position on the medical staff at the state sanatorium, Ah-Gwah-Ching, October 1. Dr. Leggett will devote her time to clinics at the Indian Hospitals at Cass Lake, Red Lake and White Earth. Her main office is in Cass Lake.

* * *

Several Mayo Clinic staff members attended meetings throughout the country recently.

Dr. K. W. Bruce attended a meeting of the American Academy of Oral Pathology at Washington, D. C., and participated in a mid-year symposium on bone tumors and diseases, October 18.

Dr. L. C. Kolb attended a meeting on psychiatry with the Ad Hoc Committee on Stress and a meeting of the Division of Medical Sciences of the National Research council in Washington, D. C., October 18.

Dr. E. T. Leddy was at a meeting of the American Cancer Society, October 20-21.

Drs. G. B. Logan and **S. D. Mills** attended a meeting of the American Academy of Pediatrics in Chicago, the week of October 19.

* * *

In connection with his work with the Minnesota Mental Health research laboratory at Hastings, **Dr. Henry Vai Meier,** Stillwater, recently spent several days visiting the research laboratories of the M. D. Anderson Cancer Station at Houston, Texas.

Dr. A. I. Balmer addressed the Pipestone Parent Teachers Association, October 14, on the 1952 polio outbreak in Minnesota.

* * *

Dr. M. Duane Sommerness, former North Dakota State psychiatrist, and **Dr. Frithjoe Sorum,** private practitioner at Jasper, joined the staff of the Willmar State Hospital in November. Two other medical workers to join the staff in November also were Ole T. Omlid as the chief psychiatric social worker and Curtis W. Page, a clinical psychologist.

* * *

Open house was held in the new doctors building in Lyle where **Dr. Conrad B. Frydenlund,** of Hayward began practice in his local community, October 25.

* * *

Dr. C. W. Mayo, Rochester, was one of eighteen Minnesotans appointed to national American Legion commissions, committees and boards for the coming year. Dr. Mayo's appointment as assistant chief medical advisor to the rehabilitation medical advisory board was announced October 22.

* * *

Dr. Mary C. Ghostley, superintendent of Lake Julia Sanatorium at Puposkey for nineteen years, will retire in 1953 and the sanatorium will be sold or used for other purposes.

* * *

Dr. Sumner S. Cohen, assistant medical director at Glen Lake Sanatorium, spoke on the changing age trend of tuberculosis, at the Thirty-fifth Annual meeting of the American Dietetic Association in Minneapolis, October 21-24.

* * *

Dr. Stanley V. Lofsness, consultant pathologist of St. Lucas Deaconess Hospital, Faribault, addressed an open meeting of the Hospital Auxiliary Assembly October 22, on the work of the pathologist, especially in reference to cancer.

* * *

Helping the city to celebrate its "Health Days," **Dr. C. E. Carlson** of the Alexandria Clinic addressed the Parent Teachers Association on heart diseases, October 20.

Members of the professional staffs of the Mayo Clinic and the Rochester State Hospital who participated in the meeting of the American Dietetic Association, held in Minneapolis, October 21-24, were: **Drs. J. A. Bargen** and **Clifford F. Gastineau,** Mayo Clinic; John S. Pearson, clinical psychologist at the Rochester State Hospital, and Sister Mary Victor, director of the department of nutrition at Saint Mary's Hospital.

More than 175 members of the Association met for "Rochester Day" at Rochester, October 25, following the Minneapolis meeting. During the program **Dr. Donald C. Balfour,** director emeritus of the Mayo Foundation for Medical Education and Research, spoke on the medical center of Rochester; interested persons attended tours of the Mayo Clinic and associated institutions which contribute to the care of patients; for dietitians who served their internship at Saint Mary's Hospital, an alumni dinner was served at the hospital.

* * *

Guest speakers at the pathological conferences on cancer and heart diseases held at Saint Lukes Hospital in Alexandria were **Dr. Arthur C. Kerkhof,** Clinical Associate Professor, Department of Medicine, University of Minnesota, October 20, and **Dr. Ivan Baronofsky,** Associate Professor of Medicine at the University, November 11.

* * *

Dr. James M. A. Weiss, formerly of Minneapolis, recently completed a one-week appointment as Consultant in Psychiatry to the New York State Mental Health Commission, in Syracuse, New York. Dr. Weiss served as supervising interviewer and took part in the analysis of research data gathered in a mass survey project, designed by Dr. Ernest M. Gruenberg, Executive Director of the Commission, to determine the prevalence of mental illness in the older population groups.

Dr. Weiss was graduated from the University of Minnesota and its Medical School. Formerly Teaching Assistant in Psychology at St. Thomas College, he has served as Assistant Surgeon (R) in the U. S. Public Health Service, and as Fellow of the National Institute of Mental Health in Psychiatry and Public Health at Yale University. He now holds an ap-

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pointment as Senior Resident in Neuropsychiatry, under the U.S.V.A.-Yale University Training Program, at New Haven Hospital.

* * *

Dr. Inman A. Helsa joined the Austin Clinic in October. Dr. Helsa was graduated from Southwestern Medical College, Dallas, Texas, in 1950, and recently completed his internship at Charles T. Miller Hospital, Saint Paul.

* * *

Dr. Walter B. Wells, Jackson, was elected president of the Southwestern Minnesota Medical Society at the annual meeting held at the Country Club in Pipestone, October 27. Other officers named were **Dr. L. J. Hoyer,** Windom, president-elect; **Dr. A. I. Balmer,** Pipestone, vice president, and **Dr. O. M. Heiberg,** Worthington, secretary. **Drs. B. M. Stevenson,** Fulda, and **Dr. E. W. Arnold,** Adrian, were named to the office of censors.

Dr. E. D. Henderson, Mayo Clinic, spoke on the treatment of Oster-Arthritis.

* * *

Four "Top Flight GP's" were named at the annual refresher course of the Minnesota Academy of General Practice, held at the Radisson Hotel, Minneapolis, October 29. The doctors thus honored were **Dr. Roger G. Hassett,** Mankato; **Dr. Albert E. Ritt,** Saint Paul; **Dr. Aaron Friedell,** Minneapolis; and **Dr. Willis L. Herbert,** Minneapolis.

The citations were made "on the basis of the quality of their work, the esteem of their colleagues and their work for the academy," **Dr. James A. Blake,** Hopkins, president, said

Speakers at the course included: Dr. Philip Thorek and Dr. Philip Lewin of Chicago; Dr. A. C. Corcoran, Cleveland; **Dr. E. V. Allen,** Rochester; and **Drs. Cecil Watson, E. T. Bell** and **Raymond Bieter** of the University of Minnesota.

* * *

Dr. and **Mrs. Theodore H. Sweetser,** Minneapolis, have a new son, Paul Anthony, born October 11.

* * *

Dr. William Bernard Halme, Brainerd, was inducted into the army, November 28.

* * *

The Minnesota Society of Internal Medicine held its annual fall meeting at Rochester, October 27. Physicians who gave papers were: **Drs. L. O. Underdahl, Talbert Cooper, J. M. Stickney, G. L. Pease,** R. G. Tompkins, D. C. Connolly, **E. H. Wood, H. B. Burchell, J. W. Kirklin, Thomas W. Parkin, Ian E. Rusted, Jesse E. Edwards, M. H. Stauffer, R. M. Salassa, J. C. Cain,** S. Y. Jordan, **M. W. Comfort, H. K. Gray** and **W. F. Kvale.**

* * *

Dr. Donald C. Balfour, emeritus director of the Mayo Foundation, spoke on "Medical Eras," to the twelfth annual dinner meeting of the Olmstead County Historical Society, October 21.

Dr. Roger L. J. Kennedy, Mayo Clinic pediatrician, was elected vice president of the American Academy of Pediatrics at the twenty-first annual meeting of the academy in Chicago, October 23.

* * *

Dr. George E. Moore, associate professor at the University of Minnesota Medical School, was named director and chief of surgery at the Roswell Park Memorial Institute at Buffalo, New York, in November.

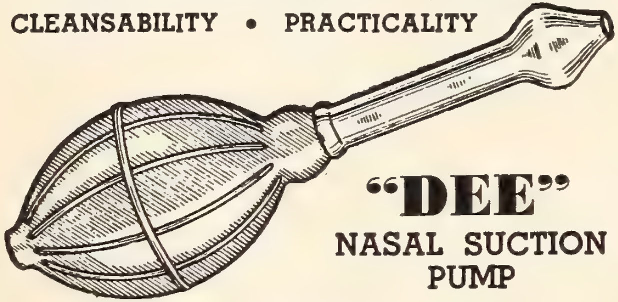
The Roswell Institute, a cancer hospital and research center, is affiliated with the University of Buffalo Medical School where **Dr. John Paine,** former University of Minnesota surgeon, is surgery chief.

* * *

Dr. W. G. Workman spoke to the members of the Tracy Kiwanis Club October 16, on the county-wide tuberculosis testing program.

* * *

Dr. Paul F. Brabec, Detroit Lakes, located in Bagley November 1. Dr. Brabec is a native Minnesotan, born at Perham. He was graduated from Iowa State University Medical School and completed his internship at Saint Mary's Hospital, Minneapolis. He has done graduate work in surgery at Rochester in addition to serving in the army during World War II and practicing with his father in Perham.



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* * *

Dr. John F. Briggs, Saint Paul, president of the Minnesota Society for Internal Medicine, spoke on the medical achievements in treatment of heart diseases to the Saint Paul Rotary Club, November 4.

* * *

Dr. Lillian Olson, staff, Ah-Gwah-Ching Sanitorium, returned to work after several weeks' vacation.

* * *

Dr. C. S. Youngstrom, Eveleth, recently joined **Drs. C. W. Jacobson** and **L. T. O'Brien** in the Breckenridge Clinic. Dr. Youngstrom was graduated from the University of Nebraska College of Medicine in 1938; he specialized in surgery and neurology at the Henry Ford Hospital in Detroit, Michigan, and with the Veterans Administration. Before coming to Breckenridge, Dr. Youngstrom was in private practice at Vinton, Iowa.

* * *

A three-day session on medical economics at the University of Minnesota October 30-November 1 was the first of the annual homecoming clinics to be held since World War II.

The course included topics such as physician's fees, legal aspects of medical practice, keeping of financial records and related subjects. Dr. Frank Dickinson, Chicago, director of the American Medical Association's bureau of medical economic research, was a guest lecturer.

Dr. Charles G. Sheppard, Hutchinson, spoke at a special University Hospital staff luncheon on "The Medical School in Relation to Medical Practice in the State."

* * *

Dr. John W. Schumacher of Minneapolis was certified in psychiatry this summer by the American Board of Psychiatry and Neurology. Dr. Schumacher is with the Minnesota Institute of Psychiatry in Minneapolis.

* * *

A new journal to be known as *The Journal of Clinical Nutrition* which will be devoted to the practical application of the newer knowledge of nutrition will appear in December and bimonthly thereafter. It will cater to the family practitioner as well as the specialist. **Dr. S. O. Waife,** Director of Medical Education at Philadelphia General Hospital, is Editor-in-

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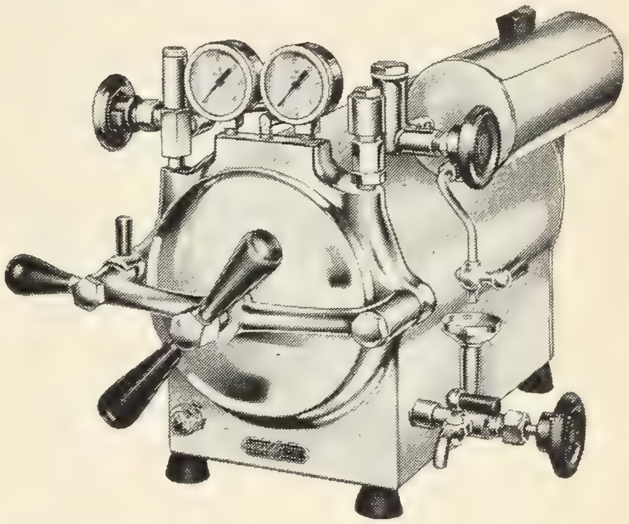

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* * *

In 1948 the Arthritis and Rheumatism Foundation was formed. This is a voluntary organization to raise funds for medical research and education on a nationwide scale. In 1950, Congress authorized and the Surgeon General of the Public Health Service established, the National Foundation of Arthritis and Metabolic Diseases, primarily to conduct research and to make grants to nonfederal institutions throughout the country. The two foundations cooperate under the leadership of **Dr. Gideon K. de Forest,** Medical Director of The Arthritis and Rheumatism Foundation and **Dr. Russell M. Wilder,** Director of The National Institute of Arthritis and Metabolic Diseases.

* * *

Dr. Philip S. Hench of Rochester, Minnesota, was the recipient of the Mississippi Valley Medical Society's Honor Award for 1952. The award, consisting of a gold medal and a certificate, was presented Dr. Hench at the banquet on the occasion of the 17th annual meeting of the society at the Jefferson Hotel, St. Louis, Missouri, October 2, 1952.

* * *

The **National Foundation for Infantile Paralysis** is offering a limited number of fellowships in the field of public health and preventive medicine. The purposes of these fellowships are to prepare physicians to fill the many vacancies existing in public health and preventive medicine. They are for one or more years at an approved school of public health and will be financed by March of Dimes funds. A medical degree, a year's internship and a United States citizenship are requisites for candidates. Complete information may be obtained from the Division of Professional Education, The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, New York.

* * *

Yellow fever vaccine, formerly made only by the Public Health Service, will be manufactured in the future by the National Drug Company of Philadelphia. Withdrawal of the government from yellow fever vaccine production is in accord with Public Health Service policy of turning over to the pharmaceutical industry the manufacture of biological products once large scale production becomes feasible. The status of clinics designated to issue yellow fever vaccine certificates is not changed and vaccination certificates must be obtained by travelers from designated clinics. The vaccine has formerly been manufactured at the Rocky Mountain Laboratory at Hamilton, Montana, a division of the National Institutes of Health.

* * *

Dr. Warren F. Wilhelm, formerly of the Mayo Clinic, has been appointed Medical Director of Research Clinic in Kansas City, Missouri. The clinic is chiefly a diagnostic clinic and devotes all of its efforts to clinical medicine.

* * *

Open house, to be held November 9, at the Belview Medical Center, honoring a new doctor—**Dr. John Strauchler**—and opening of the new building, was delayed because of illness of the doctor. Two days before the scheduled open house Dr. Strauchler was admittd to Abbott Hospital where he had an emergency operation for appendicitis.

Dr. Strauchler, Austria, was graduated from the University of Zurich Medical School in Switzerland in 1935. He was in private practice and on the staff of a Veterans Hospital in Canada for several years before coming to Minnesota. He recently completed a year of internship at Abbott Hospital, Minneapolis.

* * *

Dr. L. H. Heinz and **Dr. I. B. Heinz,** moved into new clinic quarters in the Hergott building in Shakopee, November 1.

* * *

Dr. Grant L. Griebie joined **Dr. A. M. Jensen** in the Brownton Clinic at Brownton in November.

Dr. Griebie, who recently served twenty-one months in the army in the United States and Germany, was born and grew up in Brownton. He attended St. Olaf College in Northfield; received his medical degree from Northwestern University, Chicago, and interned at Cook County Hospital in Chicago.

Before he joined Dr. Jensen, Dr. Griebie was in practice with **Dr. J. D. Selmo** at Northwood.

* * *

Dr. V. G. Coseriu, Youngstown, Ohio, joined **Dr. L. A. Veranth** in his practice at St. Cloud, in November. Dr. Coseriu received his medical education in Romania. He spent a year interning at St. Elizabeth Hospital in Youngstown and was also a surgical resident in Youngstown.

* * *

Dr. Paul H. Lober, pathology department, University of Minnesota, was recently made a member of the American Board of Pathology.

* * *

Opening practice in Buffalo Lake in November was **Dr. Daniel H. Bessesen.** Until December 1, when Dr. Bessesen moves to Buffalo Lake his practice will be on a part-time basis. Dr. Bessesen has been in practice in Minneapolis since he was separated from the army in 1945 after eighteen years of service.

BLUE CROSS—BLUE SHIELD

A few weeks ago an internist called the Blue Shield office to inquire how he could collect medical fees for the care of in-hospital Blue Shield subscribers. He discussed three cases, in each one of which he was the initial attending physician. For none of them had he been able to collect a Blue Shield claim for in-hospital medical care. Such cases represent a real problem to both the attending doctors and Blue Shield personnel.

In each of the three instances mentioned, the surgeon or other physician called in to attend the case had sent his claim to Blue Shield before one was received from the internist. In two cases, the surgeon's claim involved the entire period the patient was in the hospital and thus did not permit payment by Blue Shield of medical care fees to the original or admitting physician. And again, in the third instance, medical fees for the entire twenty-one days of in-hospital medical care provided by the Blue Shield contract were paid to another physician called in on the case.

In all three of these cases, the surgeon or consulting physician was paid by Blue Shield because their claims were received first and carried no evidence that another doctor had attended the subscriber. Had the internist

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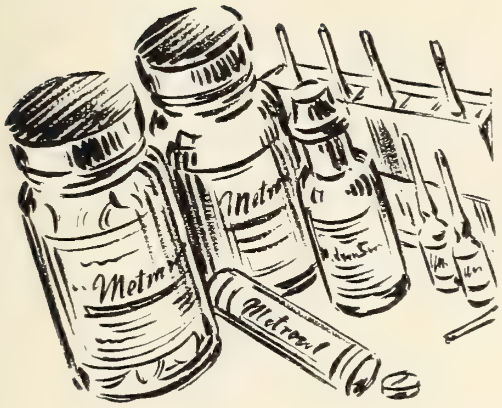

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filed his claim with Blue Shield as soon as the subscriber was discharged from the hospital, he would have received the Blue Shield fees to which he was entitled.

Still another safeguard is involved in all these cases, namely: listing on the claim blank the name of any other physician or surgeon attending the patient during that period of hospitalization. There is a place on the Medical Service Report for listing other physicians in attendance. In most instances, the initial attending doctor does give the name and address of any doctor he has called in on the case. However, very frequently the operating surgeon or other consulting physician fails to list the original attending doctor, and when their Blue Shield claims are received first, the initial attendant's Blue Shield claim cannot be paid.

All such inequities and misunderstandings can be avoided by two simple measures. The first consists of filing Blue Shield claims as soon as possible after the full service is rendered. And the second measure is the listing in the space provided for this information in the Blue Shield Medical Service Report of the name and address of each doctor who has seen the patient during that period of hospitalization. If both the originally attending physician and all other physicians called in on the case would extend this courtesy to their confrères the proper payment by Blue Shield of all such justifiable claims would be largely solved.

On October 1, 1952, the revised Blue Shield contract and Schedule of Payments, both carrying increased benefits, became effective. Services rendered prior to October 1, 1952, are not affected by the changes. In order to avoid conflicts, every doctor is requested to submit, as soon as possible, his claims for services rendered prior to October 1, 1952.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BACTERIAL AND MYCOTIC INFECTIONS OF MAN. Second Edition. Edited by René J. Dubos, Ph.D. The Rockefeller Institute for Medical Research. 886 pages. Illus. Price $7.50, cloth. Philadelphia: J. B. Lippincott Co., 1952.

VASCULAR DISEASES IN CLINICAL PRACTICE. By Dr. Irving Sherwood Wright, M.D., Professor of Clinical Medicine, Cornell University Medical College. 2nd Edition. 552 pages. Illus. Price: $8.50. Chicago: The Year Book Publishers, Inc., 1952.

Most books on the circulatory system devote nearly all their attention to the heart. This book confines its discussions to the anatomy, physiology, abnormalities and diseases of the blood and lymph vessels. It discusses in detail the symptoms and mechanism of those symptoms, also many special but practical diagnostic tests, and treatment of vascular diseases.

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MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 1150)

In regard to silk versus catgut: silk may be more hazardous, but catgut is more difficult to work with.

We have no Vitamin C level studies, but we used to use it empirically. We have abandoned it, and the hemorrhages are no more frequent.

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

Meeting of April 9, 1952

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, April 9, 1952. Dinner was served at 7 p.m. and the meeting was called to order at 8 P.M. by the President: Dr O. H. Wangensteen.

There were forty-nine members and four guests present.

Minutes of the March meeting were read and approved.

Upon ballot, the following men were elected as candidates for membership in the Academy:

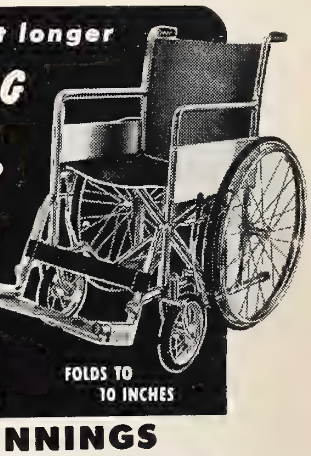
Dr. Leo Culligan	Minneapolis
Dr. Robert F. McGandy	Minneapolis
Dr. Richard Varco	University of Minnesota

Dr. Wangensteen then introduced the speaker of the evening.

Dr. Richard V. Ebert, Chief of Medical Service, at the Veterans Administration Hospital, Minneapolis, gave a talk on "The Pathological Physiology of Pulmonary Emphysema." Lantern slides were shown.

The meeting was adjourned.

Wallace P. Richie, M.D., *Secretary*



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WANTED—M.D. for general practice starting January 1, 1953, for two years to replace partner called into service. Small town—small hospital. Address E-337, care Minnesota Medicine.

THORACIC AND GENERAL SURGEON, qualified and certified, age 39, desires location, association or clinic. Straight thoracic surgery preferred. Presently, Chief Surgical Services and Thoracic Surgeon, Veterans Administration Hospital. Write E-335, care Minnesota Medicine.

WANTED—General surgeon willing to do some general practice in southern Minnesota city of 20,000. Two new hospitals. New office building and full equipment adequate for two other physicians. Partnership advantage in near future. Practice established 25 years. Must be able to start in January or early February. Address E-342, care Minnesota Medicine.

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EXCELLENT LOCATION FOR PHYSICIAN—Good farming community, large surrounding territory, Scandinavian, German and Irish population. Five rooms available in up-to-date clinic building. Write or call Tenhoff's Pharmacy, Balaton, Minnesota. Telephone No. 112.

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WANTED: Physician interested in general practice, internal, and industrial medicine to join five-man clinic. Salary and future member of partnership offer excellent opportunity. Address E-345, care Minnesota Medicine.

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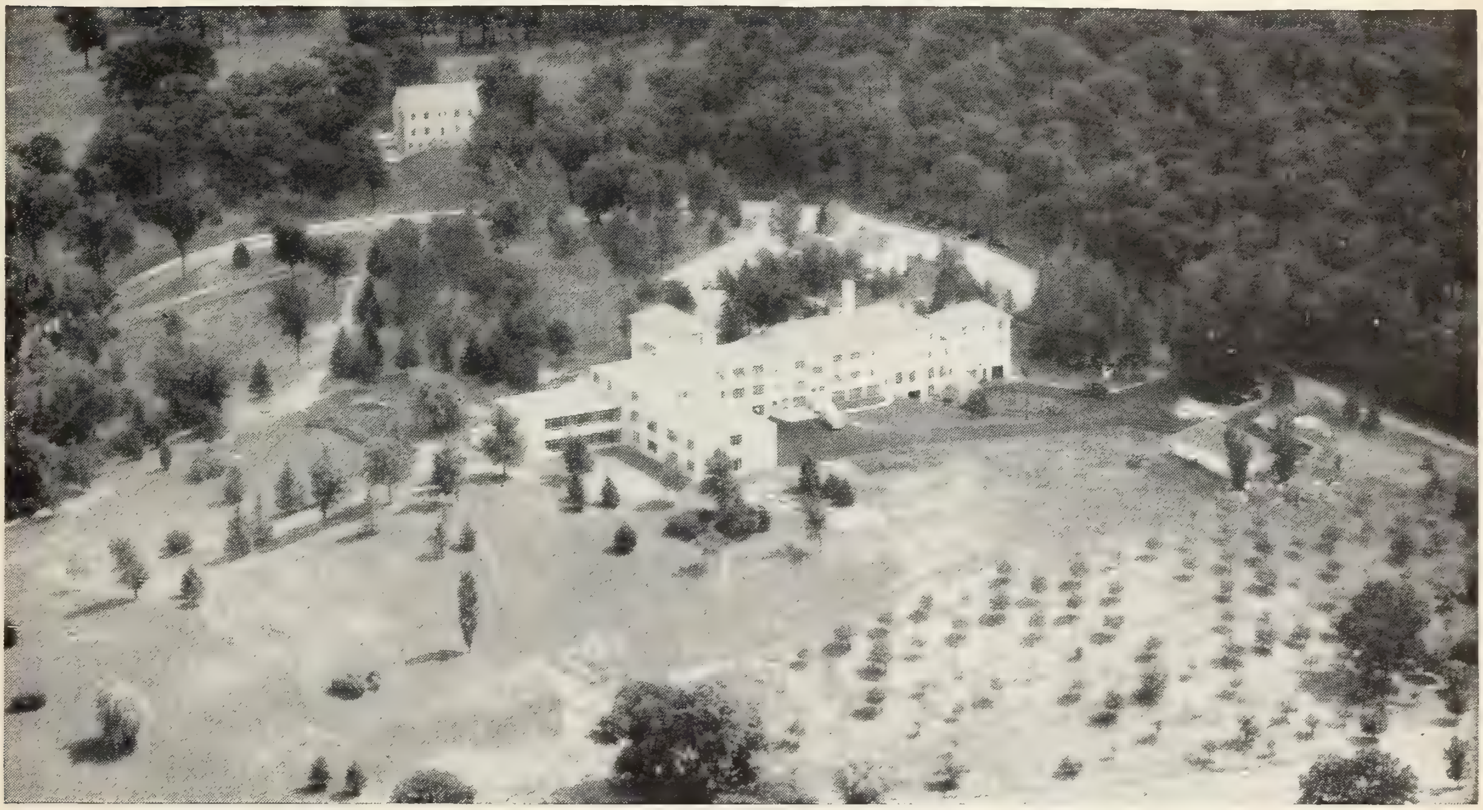

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